243 Jubug-ri, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do 449-822, Korea
Tel: +82-31-323-6008 Fax: +82-31-323-6010
http://www.ltalab.com

EMC TEST REPORT

Dates of Tests: February 17 - 21, 2019
Test Report S/N: LR500121903C
Test Site : LTA Co., Ltd.

Model No. **DC-Y8C13WRX**

APPLICANT **IDIS CO., LTD.**

Equipment Name	:	**Network Camera**
Manufacturer	:	**IDIS CO., LTD.**
Model name	:	**DC-Y8C13WRX**
Additional Model name	:	**DC-Y8C13RX, NC-Y8C13WRX, NC-Y8C13RX**
Test Device Serial No.:	:	**Identification**
Directive	:	**Electromagnetic Compatibility Directive 2014/30/EU**
Rule Part(s)	:	**EN 55032:2015**
		EN 50130-4:2011/A1:2014
		EN 61000-3-2:2014
		EN 61000-3-3:2013
Data of reissue	:	**March 21, 2019**

This test report is issued under the authority of:

Young Kyu Shin, Technical Manager

The test was supervised by:

Jun Hwan Park, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

NVLAP LAB CODE 200723-0

Revision	Date of issue	Test report No.	Description
0	22.02.2019	LR500121902F	Initial
1	21.03.2019	LR500121903C	Add Additional Models

TABLE OF CONTENTS

1. General information's

1-1 Test Performed

Company name : **LTA Co., Ltd.**

Address : 243, Jubug-ri,Yangji-Myeon,Yongin-Si, Kyunggi-Do, Korea. 449-822

Web site : http://www.ltalab.com

E-mail : chahn@ltalab.com

Telephone : +82-31-323-6008

Facsimile +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2019-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	2019-04-13	FCC CAB
VCCI	JAPAN	C-4948, T-2416, R-4483(10 m), G-10847	2020-09-10 2020-09-10 2020-10-15 2019-01-22	VCCI registration
IC	CANADA	5799A-2	2019-03-15	IC filing
KOLAS	KOREA	NO.551	2021-08-20	KOLAS accredited Lab.

2. Information's about test item

2-1 Client/ Manufacturer

Company name	:	IDIS CO., LTD.
Address	:	8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA
Telephone / Facsimile	:	+82-31-723-5205 / +82-31-723-5108

Factory 1

Company name		IDIS CO., LTD.
Address		8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA

2-2 Equipment Under Test (EUT)

Class	:	A
Equipment Name	:	Network Camera
Model name	:	DC-Y8C13WRX
Additional Model name	:	DC-Y8C13RX, NC-Y8C13WRX, NC-Y8C13RX DC-Y8C13WRX is basic model, which was tested. Additionals are identical to DC-Y8C13WRX except for Model Name, marketing purpose.
Serial number	:	Identification
Date of receipt	:	February 08, 2019
EUT condition	:	Pre-production, not damaged
Interface ports	:	DC IN, LAN, AUDIO IN, AUDIO OUT, Memory Card Slot, Alarm IN
Power rating	:	AC 230 V, 50 Hz (DC Adapter) / DC 12 V (PoE Adapter)
Modulator	:	-
Crystal/Oscillator(s)	:	-
Firmware version	:	XXXX

2-3 Modification

-NONE

2-4 Model Specification

-NONE

2-5 Test conditions

Temp. / Humid. / Pressure	:	+(21 - 23) ℃ / (34 - 38) % R.H. / (101.1 – 101.2) kPa
Tested Model	:	DC-Y8C13WRX
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Power supply	:	AC 230 V, 50 Hz (DC Adapter) / DC 12 V (PoE Adapter)

2-5 EUT

Equipment	Model No.	Serial No.	Manufacturer
Network Camera	DC-Y8C13WRX	N/A	IDIS CO., LTD.

2-6 Accessary / REC + 1 kHz Play mode (DC Adapter)

Equipment	Model No.	Serial No.	Manufacturer
DC Adapter	SW60-12005000-W	N/A	N/A
Notebook	TFG	N/A	HANSUNG
Notebook Adapter	A13-040N3A	N/A	Chicony
Speaker	N/A	N/A	N/A
Smart Phone	LG-H791	N/A	LG
Micro SD Card (16 G)	N/A	N/A	SANDISK
Alarm	N/A	N/A	N/A

/ REC + 1 kHz Play mode (PoE Adapter)

Equipment	Model No.	Serial No.	Manufacturer
PoE Adapter	SFC501G	173380250133	N/A
Notebook	TFG	N/A	HANSUNG
Notebook Adapter	A13-040N3A	N/A	Chicony
Speaker	N/A	N/A	N/A
Smart Phone	LG-H791	N/A	LG
Micro SD Card (16 G)	N/A	N/A	SANDISK
Alarm	N/A	N/A	N/A

2-7 Cable List / REC + 1 kHz Play mode (DC Adapter)

From		To		Length	Shielding	
Type	I/O Port	Type	I/O Port	(m)	Cable	backshell
EUT	DC IN	Adapter	DC OUT	1.3	NO	Plastic
	LAN	Notebook	LAN	1.5	YES	Plastic
	AUDIO IN	Smart Phone	AUDIO OUT	1.2	NO	Plastic
	AUDIO OUT	Speaker	AUDIO IN	1.4	NO	Plastic
	Memory Card Slot	Micro SD Card	Memory Card Slot	-	-	-
	Alarm IN	Alarm	Alarm OUT	1.5	NO	Plastic
Adapter	AC IN	AC Power Source	3 Pin AC Line	1.3	NO	Plastic
Notebook	DC IN	Notebook Adapter	DC OUT	1.3	NO	Plastic
Notebook Adapter	AC IN	AC Power Source	3 Pin AC Line	1.3	NO	Plastic

/ REC + 1 kHz Play mode (PoE Adapter)

From		To		Length	Shielding	
Type	I/O Port	Type	I/O Port	(m)	Cable	backshell
EUT	LAN #1	PoE Adapter	LAN #1 (POWER)	1.5	YES	Plastic
	AUDIO IN	Smart Phone	AUDIO OUT	1.2	NO	Plastic
	AUDIO OUT	Speaker	AUDIO IN	1.4	NO	Plastic
	Memory Card Slot	Micro SD Card	Memory Card Slot	-	-	-
	Alarm IN	Alarm	Alarm OUT	1.5	NO	Plastic
PoE Adapter	LAN #2 (DATA)	Notebook	LAN #2 (DATA)	1.5	YES	Plastic
	AC IN	AC Power Source	3 Pin AC Line	1.3	NO	Plastic
Notebook	DC IN	Notebook Adapter	DC OUT	1.3	NO	Plastic
Notebook Adapter	AC IN	AC Power Source	3 Pin AC Line	1.3	NO	Plastic

3. Test Report

3.1 Summary of tests

Parameter	Applied Standard	Status
I. Emission		
Radiated Emission	EN 55032:2015	C
Conducted Emission	EN 55032:2015	C
Harmonic Current Emission	EN 61000-3-2:2014	NA Note 3
Voltage Fluctuations and Flicker	EN 61000-3-3:2013	C
II. Immunity		
Electrostatic Discharge	EN 61000-4-2:2009	C
RF Electromagnetic field	EN 61000-4-3:2006/A1:2008/A2:2010	C
Fast Transients Common mode	EN 61000-4-4:2012	C
Surges, line to line and line to ground	EN 61000-4-5:2014/A1:2017	C
RF common mode	EN 61000-4-6:2014/AC:2015	C
Voltage dips and Interruptions	EN 61000-4-11:2004/A1:2017	C
Main supply voltage variations	EN 50130-4:2011/A1:2014	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

Note 3: We did not test EN61000-3-2 (Harmonic current emissions) for the DC-Y8C13WRX because equipment whose rated power is less or equal 75W don't need to be tested.

3.2 EMISSION

3.2.1 Conducted emissions

Definition:

The test assesses the ability of the EUT to limit its internal noise from being present on the AC mains Power In/Output ports.

We were performed the test according to LTA procedure LTA-QI-04.

Measurement Frequency range	:	150 kHz – 30 MHz
Test method	:	EN 55032:2015
Measurement RBW	:	9 kHz
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

- Refer to the Next page (Maximum emission configuration)

A sample calculation:

COR. F (correction factor)= LISN Insertion loss + Cable loss + Pulse Limiter Factors

Emission Level= meter reading + COR.F

Limits for conducted disturbance at the mains ports of class A ITE

Frequency Range	Quasi-peak	Average
(0.15 – 0.5) MHz	79 dBuV	66 dBuV
(0.5 – 30) MHz	73 dBuV	60 dBuV
Note: The limits will decrease with the frequency logarithmically within 0.15MHz to 0.5MHz		

Limits for conducted disturbance at the mains ports of class B ITE

Frequency Range	Quasi-peak	Average
(0.15 – 0.5) MHz	(66 – 56) dBuV	(56 - 46) dBuV
(0.5 – 5) MHz	56 dBuV	46 dBuV
(5 – 30) MHz	60 dBuV	50 dBuV
Note: The limits will decrease with the frequency logarithmically within 0.15 MHz to 0.5 MHz		

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class A equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 – 0.5) MHz	(97 − 87) dBuV	(84 − 74) dBuV	(53 − 43) dBuV	(40 − 30) dBuV
(0.5 – 30) MHz	87 dBuV	74 dBuV	43 dBuV	30 dBuV

Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150Ω to the telecommunication port under test (conversion factor is 20 $\log_{10}$ 150/I= 44 dB)

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class B equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 – 0.5) MHz	(84 − 74) dBuV	(74 − 64) dBuV	(40 − 30) dBuV	(30 − 20) dBuV
(0.5 – 30) MHz	74 dBuV	64 dBuV	30 dBuV	20 dBuV

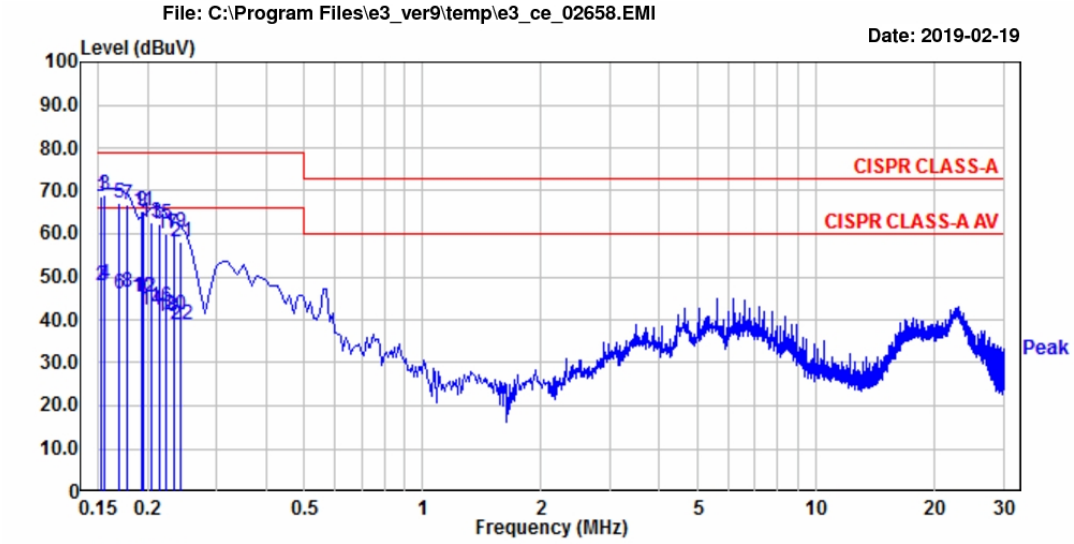
Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150Ω to the telecommunication port under test (conversion factor is 20 $\log_{10}$ 150/I= 44 dB)

Conducted emissions (LINE) / REC + 1 kHz Play mode (DC Adapter)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: DC-Y8C13WRX	Phase	: LINE
Test Mode	: REC + 1kHz Play mode	Test Power	: 230 / 50
Temp./ Humi.	: 21'C / 35 % R.H	Test Engineer	: PARK J H



Trace: 1

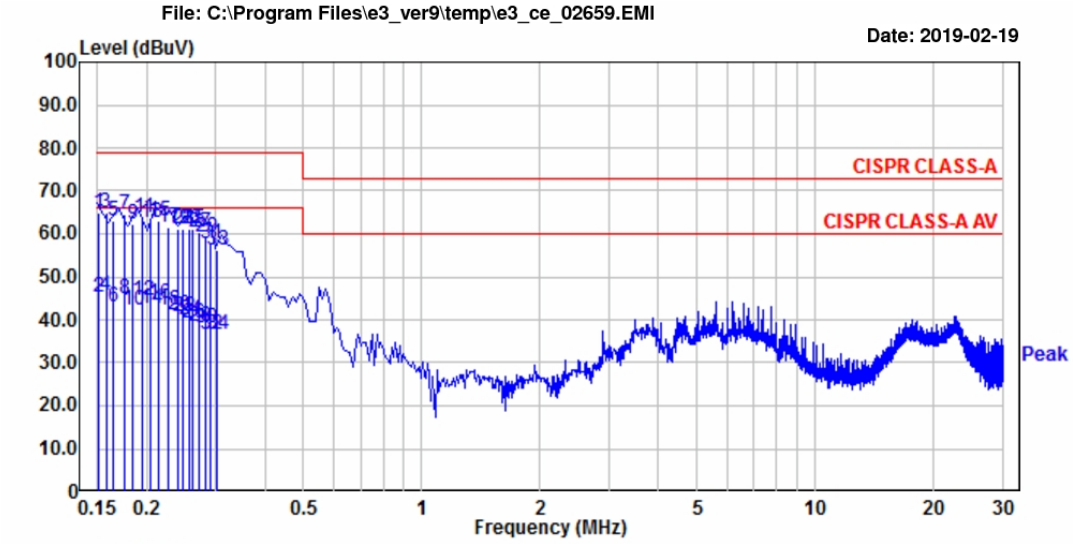
Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.152	49.39	28.45	19.47	68.86	47.92	79.00	66.00	10.14	18.08
0.156	49.52	28.73	19.47	68.99	48.20	79.00	66.00	10.01	17.80
0.170	47.68	26.58	19.48	67.16	46.06	79.00	66.00	11.84	19.94
0.178	47.26	26.98	19.47	66.73	46.45	79.00	66.00	12.27	19.55
0.193	45.82	25.89	19.47	65.29	45.36	79.00	66.00	13.71	20.64
0.195	45.64	25.94	19.47	65.11	45.41	79.00	66.00	13.89	20.59
0.204	43.01	22.89	19.47	62.48	42.36	79.00	66.00	16.52	23.64
0.215	42.63	23.56	19.47	62.10	43.03	79.00	66.00	16.90	22.97
0.223	40.66	21.18	19.47	60.13	40.65	79.00	66.00	18.87	25.35
0.234	40.81	21.72	19.48	60.29	41.20	79.00	66.00	18.71	24.80
0.243	38.54	19.33	19.48	58.02	38.81	79.00	66.00	20.98	27.19

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted emissions (NEUTRAL) / REC + 1 kHz Play mode (DC Adapter)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: DC-Y8C13WRX	Phase	: NEUTRAL
Test Mode	: REC + 1kHz Play mode	Test Power	: 230 / 50
Temp./ Humi.	: 21'C / 35 % R.H	Test Engineer	: PARK J H



Trace: 1

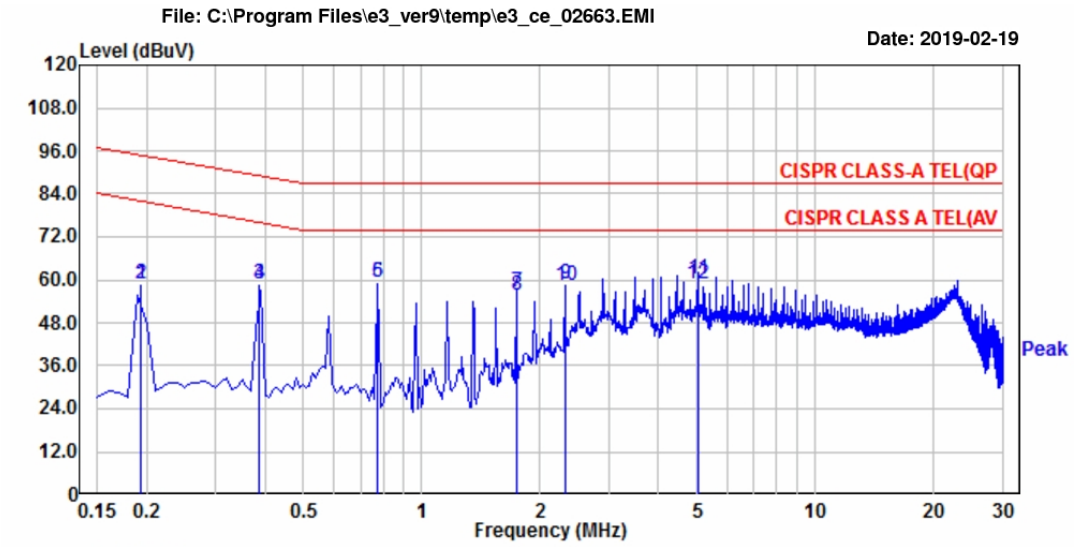
Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.151	45.29	25.74	19.48	64.77	45.22	79.00	66.00	14.23	20.78
0.158	45.53	26.21	19.48	65.01	45.69	79.00	66.00	13.99	20.31
0.165	43.50	23.42	19.49	62.99	42.91	79.00	66.00	16.01	23.09
0.176	44.94	25.55	19.48	64.42	45.03	79.00	66.00	14.58	20.97
0.185	42.80	22.86	19.48	62.28	42.34	79.00	66.00	16.72	23.66
0.196	44.24	25.07	19.48	63.72	44.55	79.00	66.00	15.28	21.45
0.205	43.27	23.10	19.48	62.75	42.58	79.00	66.00	16.25	23.42
0.214	43.49	24.26	19.48	62.97	43.74	79.00	66.00	16.03	22.26
0.227	42.19	22.67	19.48	61.67	42.15	79.00	66.00	17.33	23.85
0.241	41.53	21.52	19.48	61.01	41.00	79.00	66.00	17.99	25.00
0.248	41.70	21.40	19.49	61.19	40.89	79.00	66.00	17.81	25.11
0.258	41.74	20.44	19.49	61.23	39.93	79.00	66.00	17.77	26.07
0.262	41.49	19.82	19.49	60.98	39.31	79.00	66.00	18.02	26.69
0.273	40.85	18.87	19.49	60.34	38.36	79.00	66.00	18.66	27.64
0.282	39.73	18.68	19.49	59.22	38.17	79.00	66.00	19.78	27.83
0.291	38.30	17.23	19.49	57.79	36.72	79.00	66.00	21.21	29.28
0.302	36.64	17.02	19.49	56.13	36.51	79.00	66.00	22.87	29.49

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted emissions (TEL_1000 M) / REC + 1 kHz Play mode (DC Adapter)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: DC-Y8C13WRX	Phase	: TEL_1000M
Test Mode	: REC + 1kHz Play mode	Test Power	: 230 / 50
Temp./ Humi.	: 21'C / 35 % R.H	Test Engineer	: PARK J H



Trace: 1

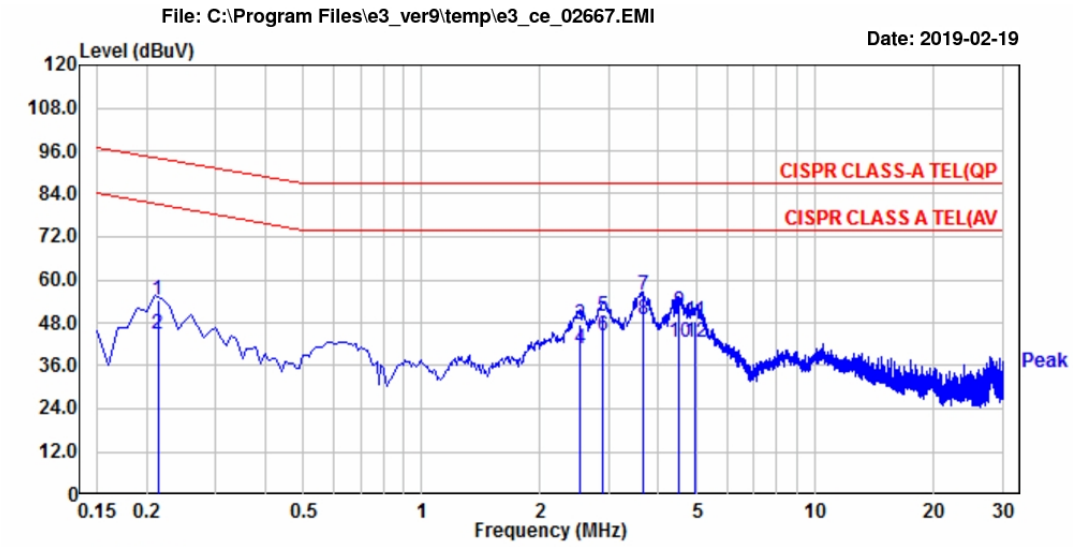
Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB
0.194	39.22	39.21	19.47	58.69	58.68	94.87	81.87	36.18	23.19
0.387	39.50	39.17	19.50	59.00	58.67	89.13	76.13	30.13	17.46
0.774	39.62	39.61	19.53	59.15	59.14	87.00	74.00	27.85	14.86
1.742	36.81	36.31	19.59	56.40	55.90	87.00	74.00	30.60	18.10
2.322	39.09	38.68	19.62	58.71	58.30	87.00	74.00	28.29	15.70
5.031	40.58	39.30	19.75	60.33	59.05	87.00	74.00	26.67	14.95

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted emissions (TEL_1000 M) / REC + 1 kHz Play mode (PoE Adapter)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: DC-Y8C13WRX	Phase	: TEL_1000M
Test Mode	: REC + 1kHz Play mode	Test Power	: 230 / 50
Temp./ Humi.	: 21'C / 35 % R.H	Test Engineer	: PARK J H



Trace: 1

Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.214	34.90	25.26	19.47	54.37	44.73	94.06	81.06	39.69	36.33
2.533	27.74	21.06	19.63	47.37	40.69	87.00	74.00	39.63	33.31
2.881	30.37	24.70	19.65	50.02	44.35	87.00	74.00	36.98	29.65
3.655	36.11	29.19	19.69	55.80	48.88	87.00	74.00	31.20	25.12
4.498	31.47	22.80	19.73	51.20	42.53	87.00	74.00	35.80	31.47
4.957	28.89	22.63	19.75	48.64	42.38	87.00	74.00	38.36	31.62

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

3.2.2 Radiated Emission

Definition:

The test assesses the ability of ancillary equipment to limit their internal noise from being radiated from the enclosure.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	:	EN 55032:2015
Measuring Distance	:	10 m for below 1 GHz / 3 m for above 1 GHz
Measurement Frequency range	:	30 MHz – 6 000 MHz
Measurement RBW	:	120 kHz @ 10 m / 1 MHz @ 3 m
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

- Refer to the Next page (Maximum emission configuration)

- The highest internal source of an EUT is higher than 108 MHz, the measurement shall be made up to 6 GHz.

(The highest internal source of an EUT : 1 GHz)

A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

Emission Level= meter reading + COR.F

Limit of 10 m for below 1 GHz

CLASS A

Frequency Range	Quasi-peak
(30 – 230) MHz	40 dBuV/m
(230 – 1 000) MHz	47 dBuV/m

CLASS B

Frequency Range	Quasi-peak
(30 – 230) MHz	30 dBuV/m
(230 – 1 000) MHz	37 dBuV/m

Limit of 3m for above 1 GHz

CLASS A

Frequency Range	Average Limit @ 3m (dBµV/m)	Peak limit @ 3m (dBµV/m)
(1 000 – 3 000) MHz	56	76
(3 000 – 6 000) MHz	60	80
NOTE:	The lower limit applies at the transition frequency.	

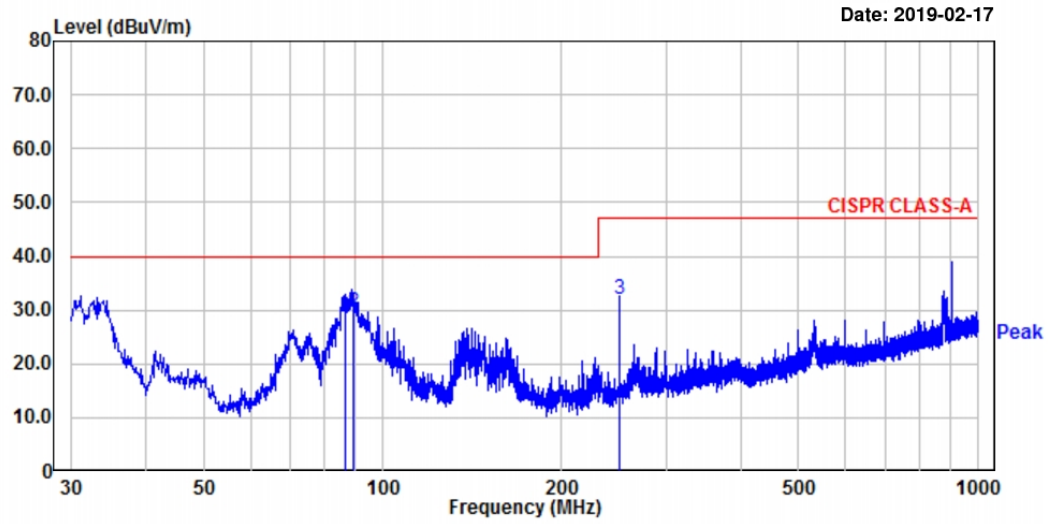
CLASS B

Frequency Range	Average Limit @ 3m (dBµV/m)	Peak limit @ 3m (dBµV/m)
(1 000 – 3 000) MHz	50	70
(3 000 – 6 000) MHz	54	74
NOTE:	The lower limit applies at the transition frequency.	

Radiated Emission (Below 1 GHz) / V _ REC + 1 kHz Play mode (DC Adapter)

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



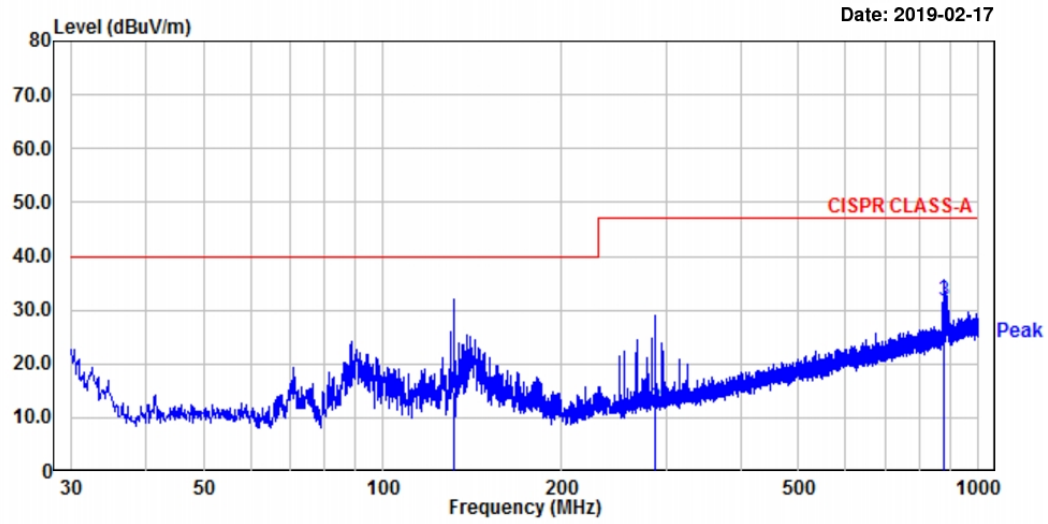
Freq	Reading	C.F	Result PK	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg	
86.73	46.80	-17.99	28.81	40.00	11.19	121	209	vertical
89.27	47.50	-17.86	29.64	40.00	10.36	161	139	vertical
249.99	44.10	-12.06	32.04	47.00	14.96	121	89	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emission (Below 1 GHz) / H _ REC + 1 kHz Play mode (DC Adapter)

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



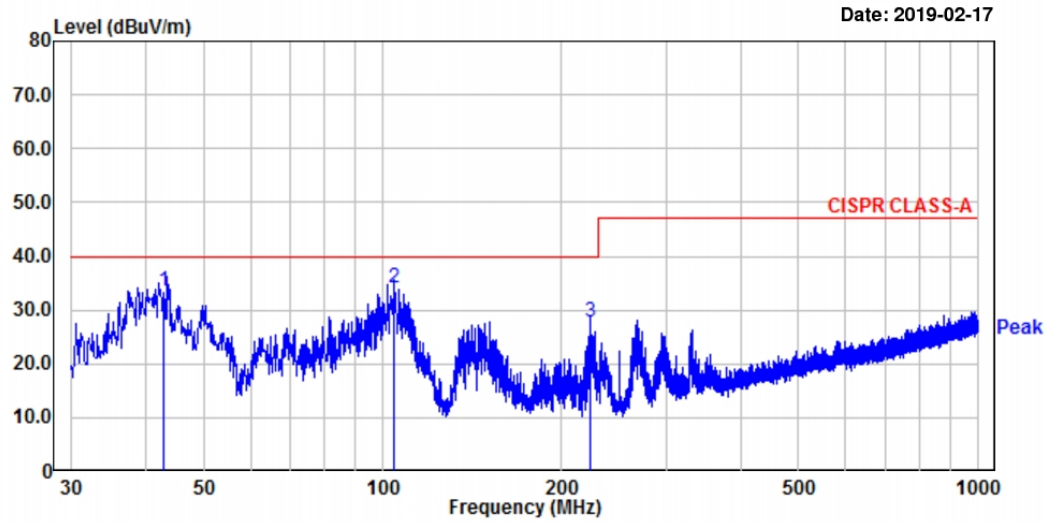
Freq	Reading	C.F	Result PK	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg	
131.96	27.30	-12.44	14.86	40.00	25.14	384	126	horizontal
286.87	22.40	-10.49	11.91	47.00	35.09	400	360	horizontal
878.94	30.89	0.91	31.80	47.00	15.20	374	33	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emission (Below 1 GHz) / V _ REC + 1 kHz Play mode (PoE Adapter)

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



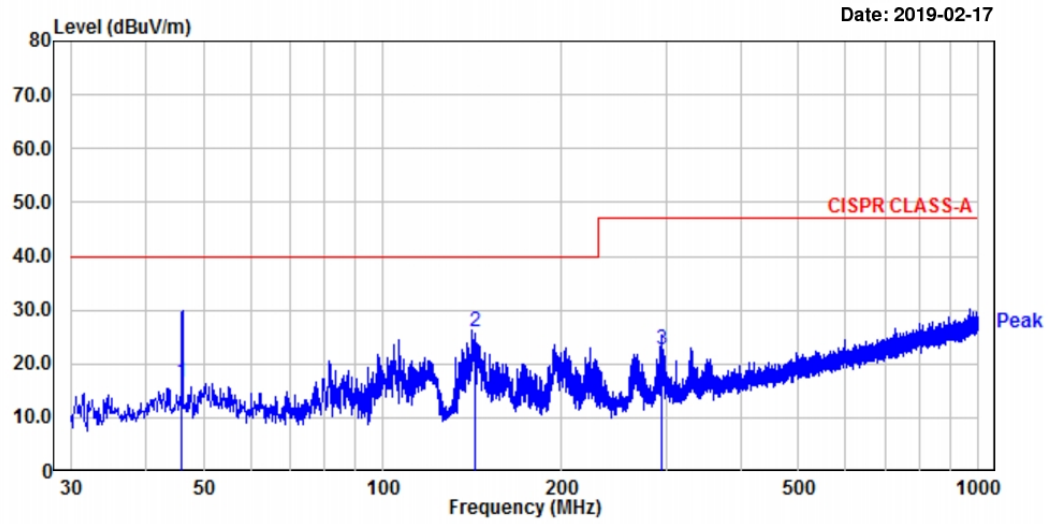
Freq	Reading	C.F	Result PK	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg	
42.92	47.69	-14.28	33.41	40.00	6.59	113	74	vertical
104.74	50.00	-15.75	34.25	40.00	5.75	128	3	vertical
223.46	41.30	-13.67	27.63	40.00	12.37	112	166	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emission (Below 1 GHz) / H _ REC + 1 kHz Play mode (PoE Adapter)

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



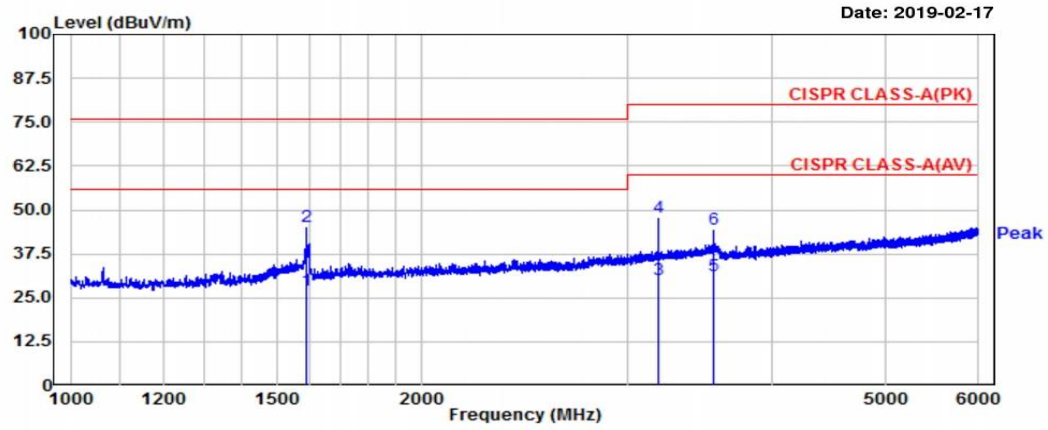
Freq	Reading	C.F	Result PK	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg	
46.01	30.70	-14.17	16.53	40.00	23.47	381	81	horizontal
143.29	38.20	-12.38	25.82	40.00	14.18	382	261	horizontal
293.79	33.10	-10.35	22.75	47.00	24.25	389	183	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emission (Above 1 GHz) _ REC + 1 kHz Play mode (DC Adapter)

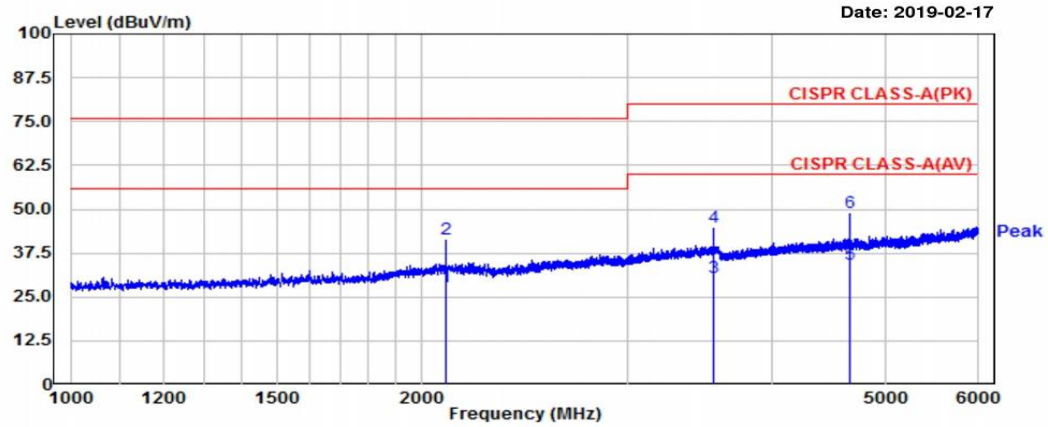
4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



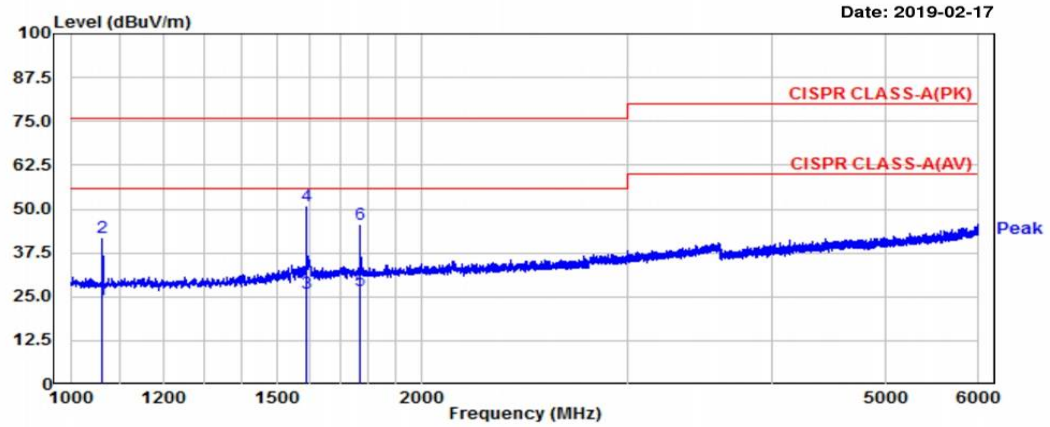
Manufacture : IDIS CO., LTD. Test Date Temp.: [23℃] Humidity : [36%] Distance (m) 4.5
Model : DC-Y8C13WRX
TEST mode : REC + 1 kHz mode (DC Adapter)

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	Hor/Ver
2093.75	43.4	29.8	1.53	44.95	31.35	76.00	56.00	31.05	24.65	100	208	H
3560.63	40.9	26.7	7.54	48.46	34.26	80.00	60.00	31.54	25.74	100	318	H
4666.88	40.3	25.8	12.21	52.53	38.03	80.00	60.00	27.47	21.97	100	222	H
1591.25	52.0	34.0	-3.14	48.88	30.88	76.00	56.00	27.12	25.12	100	250	V
3188.75	45.6	27.8	5.77	51.39	33.59	80.00	60.00	28.61	26.41	100	216	V
3564.38	40.3	26.8	7.86	48.18	34.68	80.00	60.00	31.82	25.32	100	12	V

Radiated Emission (Above 1 GHz) _ REC + 1 kHz Play mode (PoE Adapter)

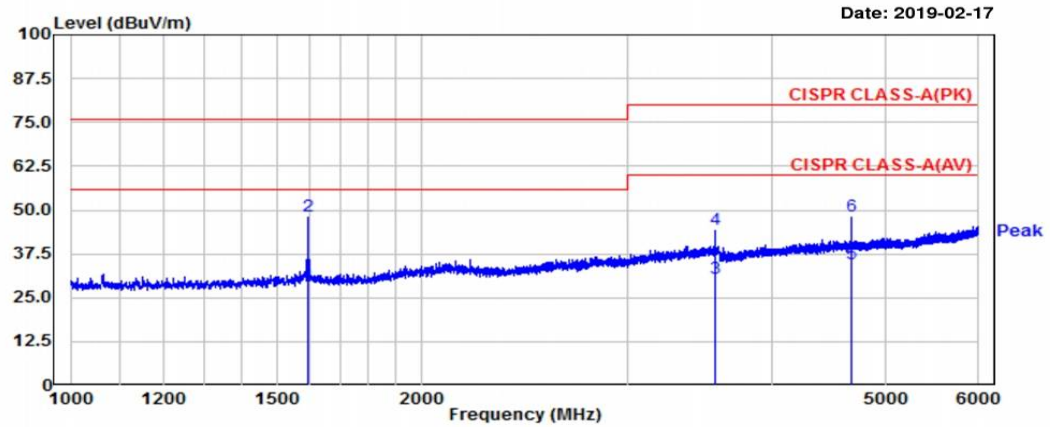
4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: DC-Y8C13WRX Temp/Humi: 23 / 36
Test Mode : REC + 1kHz Play mode Tested by: PARK J H



Manufacture : IDIS CO., LTD.
Model : DC-Y8C13WRX
TEST mode : REC + 1 kHz mode (PoE Adapter)

Test Date | **Temp.: [23℃]** | **Humidity : [36%]** | **Distance (m)** 4.5

Freq.(MHz) MHz	Reading(PK) dBuV	Reading(AV) dBuV	C.F dB	Result(PK) dBuV/m	Result(AV) dBuV/m	Limit(PK) dBuV/m	Limit(AV) dBuV/m	Margin(PK) dB	Margin(AV) dB	Height cm	Angle deg	Polarity Hor/Ver
1597.50	55.3	35.5	-3.62	51.69	31.89	76.00	56.00	24.31	24.11	100	11	H
3565.63	40.3	26.7	7.56	47.87	34.27	80.00	60.00	32.13	25.73	100	195	H
4672.50	39.7	25.9	12.23	51.95	38.15	80.00	60.00	28.05	21.85	100	82	H
1063.13	52.3	34.5	-6.96	45.36	27.56	76.00	56.00	30.64	28.44	100	264	V
1593.13	57.6	32.8	-3.13	54.49	29.69	76.00	56.00	21.51	26.31	100	38	V
1769.38	50.8	32.0	-1.59	49.23	30.43	76.00	56.00	26.77	25.57	100	287	V

3.2.3 Harmonic Current (AC power input port)

Definition:

This part deals with the Limitation of harmonic currents injected into the public supply system.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	:	EN 61000-3-2:2014
Test mode	:	REC + 1 kHz Play mode (DC Adapter)
Rated power	:	5.655 W
Result	:	**Not Applicable**

Measurement Data:

- We did not test EN61000-3-2 (Harmonic current emissions) for the DC-Y8C13WRX because equipment whose rated power is less or equal 75W don’t need to be tested.

Harmonic Current (AC power input port) / REC + 1 kHz Play mode (DC Adapter)

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IEC61000-3-2:2014
Fluctuating Harmonics

Instrument Details		
Instrument Model	PPA5511	
Serial Number	162-04957	
Firmware Version	2.168	
N4L Calibration Date	18th September 2017	
Instrument Version	Standard	
Test Settings		
Class	Class A	
Mode	Measured	
Equipment Under Test		
Brand	IDIS CO., LTD.	
Model	DC-Y8C13WRX	
Serial	N/A	
Impedance Network ID	N/A	
Test Conditions		
	User Entered	**Measured**
Rated Voltage	N/A	230.668V
Rated Current	N/A	67.375mA
Rated Frequency	N/A	50.000Hz
Rated Power	N/A	5.655W
Additional Test Information		
Measured Power Factor	0.364	
Max Current THD	248.54%	
Max THC	68.366mA	
Max Power	5.748W	
Max F.Current	28.974mA	
Average F.Current	28.245mA	
Minimum Current	100A	
Test Duration	2.5 minutes	
Additional Test Details		
Operator	N/A	
Lab Name	N/A	
Location	N/A	
Notes		
Signature		
Results	**Test - N/A. Rated Power < 75W**	

Test not applicable

With the exception of lighting equipment section 7 of the IEC61000-3-2:2014 standard declares that no Harmonic current limits are specified for equipment with a rated power of

3.2.4 Voltage Variation and Flicking (AC power input port)

Definition:

This section is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	:	EN 61000-3-3:2013
Test mode	:	REC + 1 kHz Play mode (DC Adapter)
Result	:	**Complies**

Measurement Data:

- Refer to the Next page

Voltage Variation and Flicking (AC power input port)
/ REC + 1 kHz Play mode (DC Adapter)

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IEC61000-3-3:2013 Ed.3.0
Flickermeter

Instrument Details		
Instrument Model	PPA5511	
Serial Number	162-04957	
Firmware Version	2.168	
N4L Calibration Date	18th September 2017	
Instrument Version	Standard	
Test Settings		
Class	Voltage	
Mode	Normal (4%)	
Minimum Current	10A	
PST	10.00 minutes	
PLT	12 PSTs	
Equipment Under Test		
Brand	IDIS CO., LTD.	
Model	DC-Y8C13WRX	
Serial	N/A	
Impedance Network ID	N/A	
Test Conditions		
	User Entered	**Measured**
Rated Voltage	N/A	230.665V
Rated Current	N/A	N/A
Rated Frequency	N/A	50.000Hz
Rated Power	N/A	N/A
D max	0.0736% (Limit: 4.0%)	
T max	0.0000 s (Limit: 0.5 s)	
DC max	0.0031% (Limit: 3.3%)	
Additional Test Details		
Operator	N/A	
Lab Name	N/A	
Location	N/A	
Notes		
Signature		
Results	Phase1: PASS	

19th February 2019 - 22:29:39	Ph:1 Page 2/2	IECSoft v2_5a
IEC61000-3-3:2013 Ed.3.0 Flickermeter		
Instrument Details		
Instrument Model	PPA5511	
Instrument Serial	162-04957	
Instrument Firmware	2.168	
Equipment Under Test		
Brand	N/A	
Model	N/A	
Serial	N/A	

Flicker Test Results

PST no.	Status	DC (%)	Dmax (%)	Tmax (s)	PST	PST Lim	PLT	PLT Lim
1	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
2	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
3	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
4	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
5	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
6	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
7	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
8	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
9	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
10	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
11	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	N/A
12	Phase1: PASS	0.003	0.07364	0	0.082	1.00	0.082	0.65

3.3 IMMUNITY

3.3.1 Electrostatic Discharge

Definition:

The test assesses the ability of the EUT to operate as intended in the event of an electrostatic discharge.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-2 :2009
Temperature / Humidity / Pressure	:	22 ℃ / 37 % R.H. / 101.1 kPa
Discharge Impedance	:	(330 ±10%)Ω / (150 ±10%) pF
Type of Discharge (air discharge)	:	± 2kV, ± 4 kV, ± 8 kV
Type of Discharge (contact discharge)	:	± 6 kV
Number of discharges at each point	:	10 of each polarity
Discharge Repetition on Rate	:	1 / sec
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

- Refer to the Next page

1-1. Indirect Discharge

No.	Position	Kind of Discharge	Results	Remarks
1	HCP	Contact	Complies	No reaction recognized
2	VCP	Contact	Complies	No reaction recognized

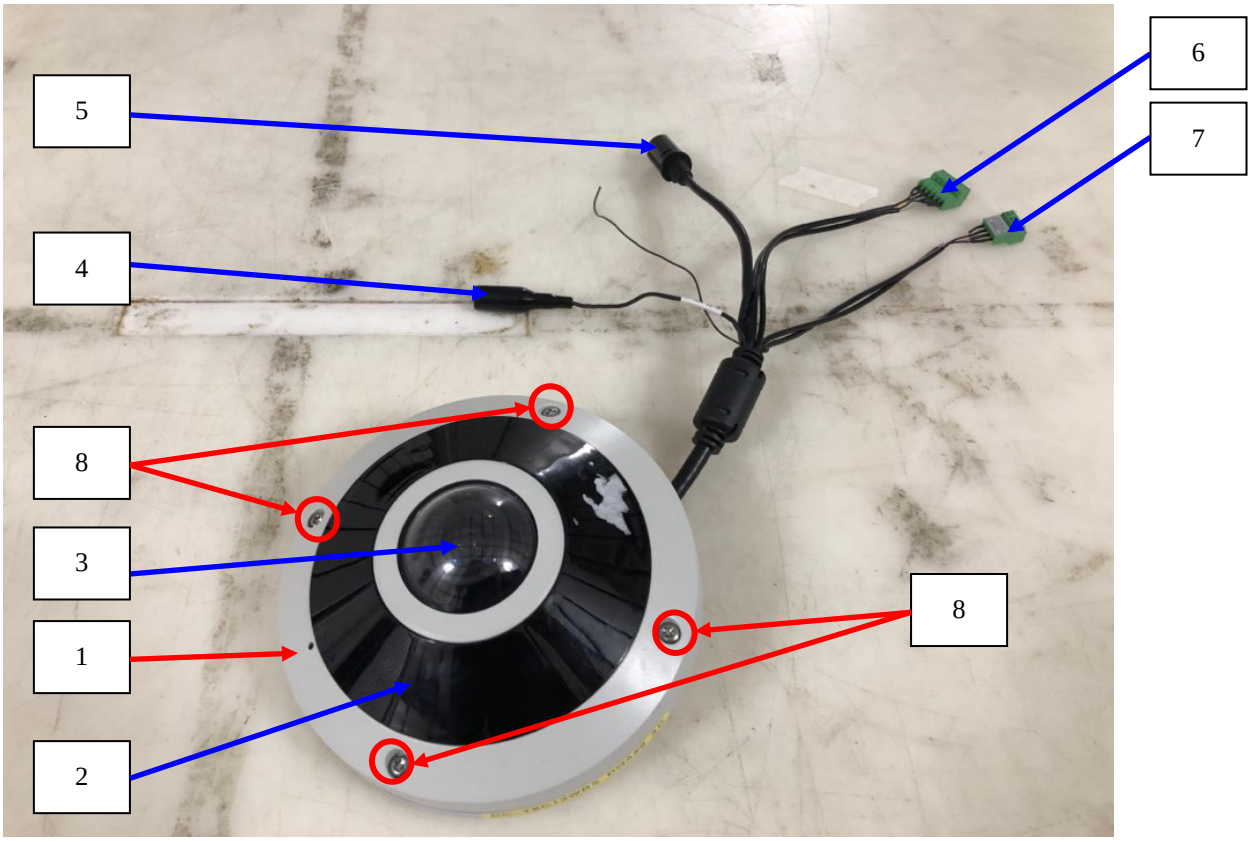
1-2. Direct Discharge

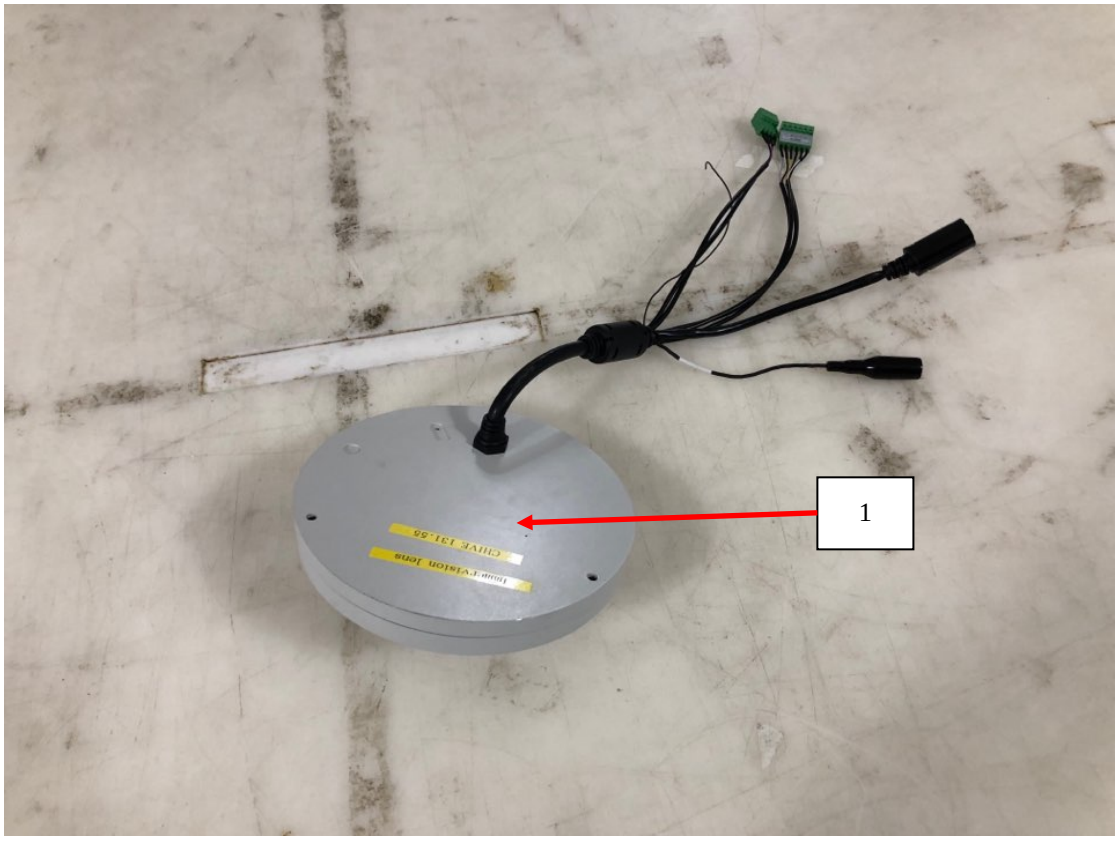
No.	Position	Kind of Discharge	Result	Remarks
1	Enclosure #1	Contact	Complies	No reaction recognized
2	Enclosure #2	Air	Complies	No reaction recognized
3	Lens	Air	Complies	No reaction recognized
4	DC IN	Air	Complies	No reaction recognized
5	LAN	Air	Complies	No reaction recognized
6	Alarm IN	Air	Complies	No reaction recognized
7	AUDIO IN/OUT	Air	Complies	No reaction recognized
8	Screw	Contact	Complies	No reaction recognized

※ Results are complies in each test mode.

Air discharge
Contact discharge

ESD TEST POINT





3.3.2 RF Electromagnetic Field

Definition:

The test assesses the ability of the EUT to operate as intended in the presence of a radio frequency electromagnetic field disturbance.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-3:2006/A1:2008/A2:2010
Temperature / Humidity / Pressure	:	21 ℃ / 34 % R.H. / 101.1 kPa
Frequency range	:	80 ㎒ to 2,700 ㎒
Test level	:	10 V/m (measured unmodulated)
Amplitude Modulation	:	AM, 80 %, 1 ㎑ Sinusoidal PM, 1 ㎐ (0.5s ON : 0.5s OFF)
Step size	:	1 % of fundamental
Dwell Time	:	3 s
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

MODE : REC + 1 kHz Play mode (DC Adapter)

Port	Side	Result	Remarks
Horizontal	Front	Complies	No reaction recognized
	Left	Complies	No reaction recognized
	Rear	Complies	No reaction recognized
	Right	Complies	No reaction recognized
Vertical	Front	Complies	No reaction recognized
	Left	Complies	No reaction recognized
	Rear	Complies	No reaction recognized
	Right	Complies	No reaction recognized

Audio Port	Result	Remarks
AUDIO OUT	Complies	No reaction recognized

MODE : REC + 1 kHz Play mode (PoE Adapter)

Port	Side	Result	Remarks
Horizontal	Front	Complies	No reaction recognized
	Left	Complies	No reaction recognized
	Rear	Complies	No reaction recognized
	Right	Complies	No reaction recognized
Vertical	Front	Complies	No reaction recognized
	Left	Complies	No reaction recognized
	Rear	Complies	No reaction recognized
	Right	Complies	No reaction recognized

Audio Port	Result	Remarks
AUDIO OUT	Complies	No reaction recognized

※ Results are complies in each test mode.

3.3.3 Electrical fast transients

Definition:

The test assesses the ability of the EUT to operate as intended in the event of fast transients presence on one of the input/output ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-4:2012
Temperature / Humidity / Pressure	:	22 ℃ / 36 % R.H. / 101.1 kPa
Cable length	:	> 3 m
Test level	:	2.0 kV (AC power input port) 1.0 kV (Signal port)
Polarity	:	Negative/ positive
Repetition frequency	:	100 ㎑
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

MODE : REC + 1 kHz Play mode (DC Adapter)

AC power Line	Test level	Result	Remarks
L – N - PE	± 2 kV	Complies	No reaction recognized

Signal Line	Test level	Result	Remarks
LAN	± 1 kV	Complies	No reaction recognized

MODE : REC + 1 kHz Play mode (PoE Adapter)

Signal Line	Test level	Result	Remarks
PoE	± 1 kV	Complies	No reaction recognized

※ Results are complies in each test mode.

3.3.4 Surge

Definition:

The test assesses the ability of the EUT to operate as intended in the event of surge presence on the AC main power input ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-5:2014/A1:2017
Temperature / Humidity / Pressure	:	21 ℃ / 37 % R.H. / 101.1 kPa
Test level	:	± 0.5 kV, ±1 kV (line to line) ± 0.5 kV, ± 1 kV, ± 2 kV (line to ground), ± 0.5 kV, ± 1 kV (signal line)
Polarity	:	Negative/ positive
Wave shape	:	1.2/ 50 μs pulse
Number of surges	:	5 (at each phase)
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

MODE : REC + 1 kHz Play mode (DC Adapter)

Phase	Line	level	Result	Remark
0°	Line(L) to line(N)	± 0.5, 1.0 kV	Complies	No reaction recognized
	Line(L) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
	Line(N) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
90°	Line(L) to line(N)	± 0.5, 1.0 kV	Complies	No reaction recognized
	Line(L) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
	Line(N) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
180°	Line(L) to line(N)	± 0.5, 1.0 kV	Complies	No reaction recognized
	Line(L) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
	Line(N) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
270°	Line(N) to ground(PE)	± 0.5, 1.0 kV	Complies	No reaction recognized
	Line(L) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized
	Line(N) to ground(PE)	± 0.5, 1.0, 2.0 kV	Complies	No reaction recognized

Signal Line	level	Result	Remark
LAN	± 0.5, 1.0 kV	Complies	No reaction recognized

MODE : REC + 1 kHz Play mode (PoE Adapter)

Signal Line	level	Result	Remark
PoE	± 0.5, 1.0 kV	Complies	No reaction recognized

※ Results are complies in each test mode.

3.3.5 Conducted disturbances, induced by radio-frequency fields

Definition:

The test assesses the ability of the EUT to operate as intended in the presence of a radio frequency electromagnetic disturbance on the input/output ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-6:2014/AC:2015
Temperature / Humidity / Pressure	:	22 ℃ / 38 % R.H. / 101.1 kPa
Frequency range	:	0.15㎒ – 100 ㎒
Test level	:	10 Vrms unmodulated
Amplitude Modulation	:	AM, 80 %, 1 ㎑ Sinusoidal
		PM, 1 ㎐ (0.5s ON : 0.5s OFF)
Step size	:	1 % of fundamental.
Test mode	:	REC + 1 kHz Play mode (DC Adapter), REC + 1 kHz Play mode (PoE Adapter)
Result	:	**Complies**

Measurement Data:

MODE : REC + 1 kHz Play mode (DC Adapter)

Port	Test level (Vrms)	Result	Remarks
Power Line	10	Complies	No reaction recognized

Signal Port	Test level (Vrms)	Result	Remarks
LAN	10	Complies	No reaction recognized

Audio Port	Test level (Vrms)	Result	Remarks
AUDIO OUT	10	Complies	No reaction recognized

MODE : REC + 1 kHz Play mode (PoE Adapter)

Port	Test level (Vrms)	Result	Remarks
PoE	10	Complies	No reaction recognized

Audio Port	Test level (Vrms)	Result	Remarks
AUDIO OUT	10	Complies	No reaction recognized

※ Results are complies in each test mode.

3.3.6 Mains supply voltage dips, short interruptions

Definition:

The test assesses the ability of the EUT to operate as intended in the event of voltage dips and interruptions present on the AC mains power input ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 61000-4-11:2004/A1:2017
Temperature / Humidity / Pressure	:	22 ℃ / 37 % R.H. / 101.2 kPa
Ut	:	230 Vac
Test mode	:	REC + 1 kHz Play mode (DC Adapter)
Result	:	**Complies**

Measurement Data:

MODE : REC + 1 kHz Play mode (DC Adapter)

Test Level %Ut	Voltage droop and interruptions %Ut	Duration of Reduction (period)	Result	Remarks
80	20	250	Complies	No reaction recognized
70	30	25	Complies	No reaction recognized
40	60	10	Complies	No reaction recognized
0	100	250	Complies	During the test, EUT OFF. Then test over, EUT normally operated.

3.3.7 Mains supply voltage variations

Definition:

The test assesses the ability of the EUT to operate as intended in the event of voltage variations present on the AC mains power input ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test date	:	2019.02.20.
Test method	:	EN 50130-4:2011/A1:2014
Temperature / Humidity / Pressure	:	22 ℃ / 37 % R.H. / 101.2 kPa
Supply Voltage maximum	:	*U*nom + 10 %
Supply Voltage minimum		*U*nom – 15 %
Ut	:	230 Vac
Test mode	:	REC + 1 kHz Play mode (DC Adapter)
Result	:	**Complies**

Measurement Data:

*U*nom = Nominal mains voltage. Where provision is made to adapt the equipment to suit a number of nominal supply voltages (e.g. by transformer tap changing), the above conditioning severity shall be applied for each nominal voltage, with the equipment suitably adapted. For equipment which is claimed to be suitable for a range of nominal mains voltages (e.g. 220/240 V) without adaptation, *U*max = (Maximum *U*nom) + 10 %, and *U*min = (Minimum *U*nom) p 15 %. In any case the range of *U*nom must include the European nominal mains voltage of 230 V.

2 **Mains supply voltage variations**

MODE : REC + 1 kHz Play mode (DC Adapter) / 230 V, 50 Hz

Test LevelCondition		Test Level (V)	Result	Remarks
Unom	+10%	253	Complies	No reaction recognized
Unom	-15%	195.5	Complies	No reaction recognized

APPENDIX A

TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment are identified by the Test Laboratory.

Conducted emissions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2019.07.11	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2019.03.19	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2019.09.07	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2019.09.07	1 year
☒	LISN	ENV216	Rohde & Schwarz	100408	2019.10.10	1 year
☒	LISN	LT32C/10	AFJ	32031518210	2019.09.06	1 year
☒	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-
☐	ISN	ISN T800	TESEQ	27109	2019.09.12	1 year
☒	ISN	ENY81-CA6	Rohde & Schwarz	101565	2019.09.12	1 year
☐	CURRENT PROBE	EZ-17	Rohde & Schwarz	100508	2019.09.06	1 year

Radiated Emission – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESCI7	Rohde & Schwarz	100772	2019.09.06	1 year
☒	Amplifier (25 ㏈)	8447D	HP	2944A07684	2019.09.06	1 year
☒	TRILOG Antenna	VULB9160	SCHWARZBECK	9160-3237	2019.05.16 (KOLAS)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

Radiated Emission – Above 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESCI7	Rohde & Schwarz	100772	2019.09.06	1 year
☒	Amplifier	8449B	HP	3008A00671	2019.09.06	1 year
☒	HORN ANTENNA	3115	ETS	114105	2019.11.03 (KOLAS)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

Harmonic Current / Voltage Variation and Flicking

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Precision Power Analyzer	PPA5511	Newtons4th Ltd	162-04957	2019.09.10	1 year
☒	Reference Impedance Network	ES4152	NF Corp.	9074424	2019.09.07	1 year

Electrostatic Discharge

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	ESD Simulator	ESS-2000	NOISEKEN	8000C03241	2019.09.11	1 year
☒	ESD GUN	TC-815R	NOISEKEN	ESS0564361	2019.09.11	1 year

RF Electromagnetic Field

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Signal Generator	E4432B	Agilent	MY41310632	2019.05.15	1 year
☒	Power Meter	E4419B	Agilent	GB38410133	2019.05.15	1 year
☒	Power Sensor	E9300A	Agilent	MY41497992	2019.05.15	1 year
☒	Power Sensor	E9300A	Agilent	MY41497618	2019.05.15	1 year
☒	RF POWER AMPLIFIER	ITA0300KL-300	INFINITECH	0300KL 1507 001	-	-
☒	RF POWER AMPLIFIER	ITA2000KL-120	INFINITECH	200KL 1507 001	-	-
☒	RF POWER AMPLIFIER	ITA4500KL-70	INFINITECH	4500KL 1507 001	-	-
☒	RF POWER AMPLIFIER	ITA0750KL-300	INFINITECH	0750KL 1507 001	-	-
☒	Log.-Per.Antenna (80 ㎒ ~ 3 ㎓)	K9128	RAPA	NONE	-	-
☐	Signal Generator	SMB 100A	R&S	177621	2019.03.19	1 year
☐	HORN ANTENNA	3115	ETS	00055005	-	-
☒	Sound Acoustic Tester	TST-1000	TESTEK	150065-A	2019.09.11	1 year
☐	Microphone	MPA201	BSWA	530147	2019.09.13	1 year

Electrical fast transients

	Item	**Model Name**	**Manufacturer**	**Serial No.**	**Next Cal.**	**Interval**
☒	Compact Generator	Compact NX	EMTEST	P1725200196	2019.09.06	1 year
☒	AC Power Source	Variac NX	EMTEST	P1745207276	2019.09.06	1 year
☒	Capacitive Coupling Clamp	CCI	EMTEST	P1744207071	2019.09.06	1 year

Surge

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Compact Generator	Compact NX	EMTEST	P1725200196	2019.09.06	1 year
☒	AC Power Source	Variac NX	EMTEST	P1745207276	2019.09.06	1 year
☒	CDN	CNV 508T5	EMTEST	P1742204978	2019.09.07	1 year
☐	CDN	CNV 508N1	EMTEST	P1742204940	2019.09.07	1 year

Conducted disturbances, induced by radio-frequency fields

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Signal generator	SML03	R&S	103026/0013	2019.03.19	1 year
☒	POWER METER	NRVD	R&S	101689	2019.03.19	1 year
☒	POWER Sensor	URV5-Z2	R&S	100755	2019.03.19	1 year
☒	POWER Sensor	URV5-Z2	R&S	100756	2019.03.19	1 year
☒	RF Power Amplifier	FLL75A	FRANKONIA	1033	-	-
☒	EM INJECTION CLAMP	TSIC-23	F.C.C	529	2019.05.16	1 year
☐	CDN (M1)	TSCDN-M1-16A	F.C.C	07004	2019.09.06	1 year
☐	CDN (M2)	TSCDN-M2-16A	F.C.C	07008	2019.09.06	1 year
☒	CDN (M3)	TSCDN-M3-16A	F.C.C	07017	2019.09.06	1 year
☒	Sound Acoustic Tester	TST-1000	TESTEK	15065-A	2019.09.11	1 year
☐	Microphone	MP201	BSWA	530147	2019.09.13	1 year

Mains supply voltage dips, short interruptions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Compact Generator	Compact NX	EMTEST	P1725200196	2019.09.06	1 year
☒	AC Power Source	Variac NX	EMTEST	P1745207276	2019.09.06	1 year

Mains supply voltage variations

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	Compact Generator	Compact NX	EMTEST	P1725200196	2019.09.06	1 year
☒	AC Power Source	Variac NX	EMTEST	P1745207276	2019.09.06	1 year

APPENDIX B

PERFORMANCE CRITERIA

Performance criteria

The variety and the diversity of the apparatus within the scope of this document makes it difficult to define precise criteria for the evaluation of the immunity test results.
If as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.
A functional description and a definition of performance by the manufacture and noted in the test report, based on the following criteria:

Electrostatic discharge

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of discharge is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test
(see Clause 6), after the conditioning.

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at a field strength of 3 V/m.
For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V/m, providing.
(a) there is no permanent damage or change to the EUT
(e.g. no corruption of memory or changes to programmable setting etc.)
(b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and
(c) there is no observable deterioration of the picture at 1 V/m.
The EUT shall meet the acceptance criteria for the functional test(see Clause 6), after the conditioning.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of the bursts is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test
(see Clause 6), after the conditioning.

Slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of the surges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test
(see Clause 6), after the conditioning.

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at U0 = 130 dBμV.
For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at U0 = 140 dBμV, providing
(a) there is no permanent damage or change to the EUT
(e.g. no corruption of memory or changes to programmable settings, etc.)
(b) at U0 = 130 dBμV, any deterioration of the picture is so minor that the system could still be used, and
(c) there is no observable deterioration of the picture at U0 = 120 dBμV.
The EUT shall meet the acceptance criteria for the functional test(see Clause 6), after the conditioning.

Voltage dip/interruption

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test(see Clause 6), after the conditioning.
It is permitted to use ancillary equipment (e.g. A UPS) to meet the requirements of this clause. This shall be detailed in the test report and the manufacturer's installation manual.
Signaling a mains fault during the 100 % voltage reduction test is permitted.

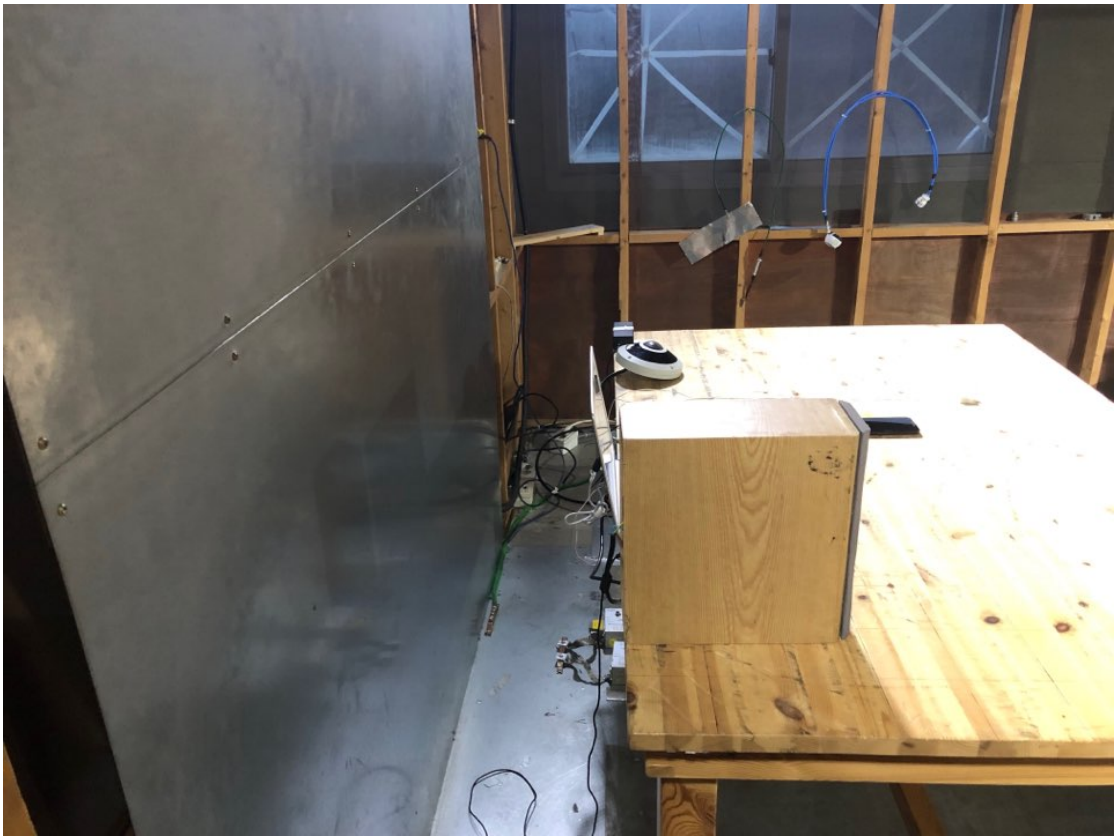
Mains supply voltage variations

There shall be no damage, malfunction or change of status due to the different supply voltage conditions. The EUT shall meet the acceptance criteria for the functional test(see Clause 6), during the conditioning.

APPENDIX C

PHOTOGRAPHS

Conducted emission (Maximum emission configuration) / REC + 1 kHz Play mode (DC Adapter)

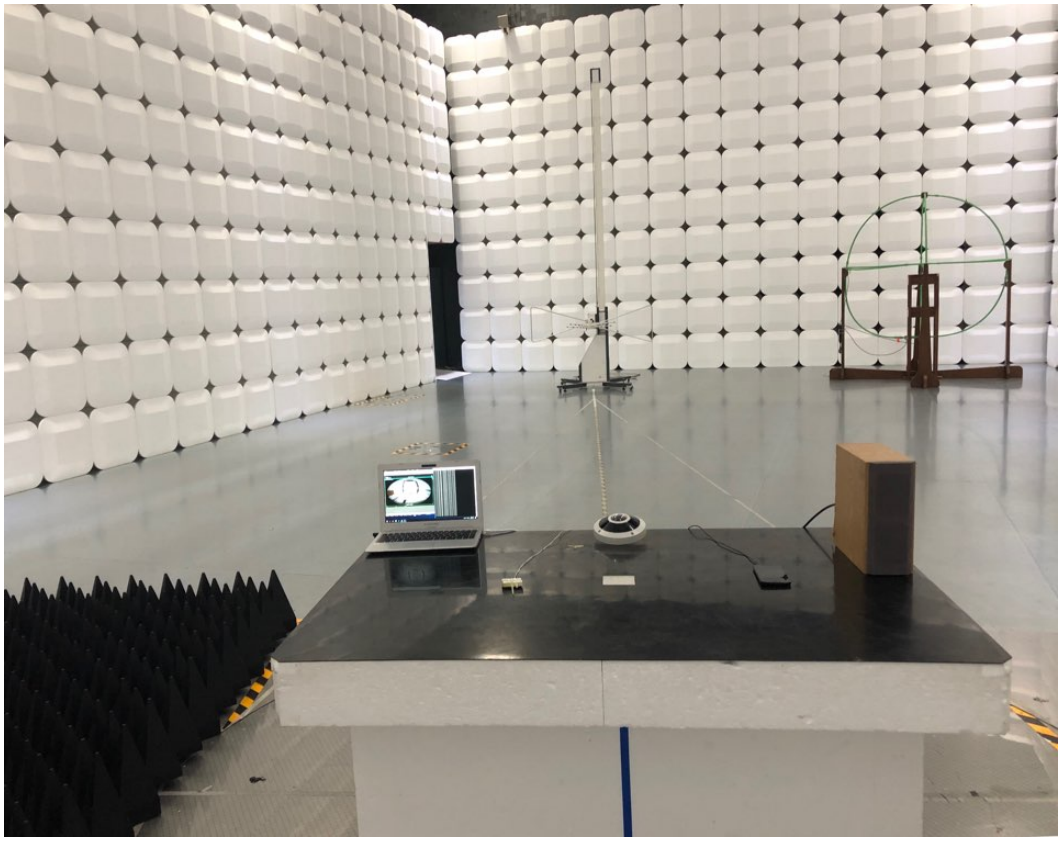


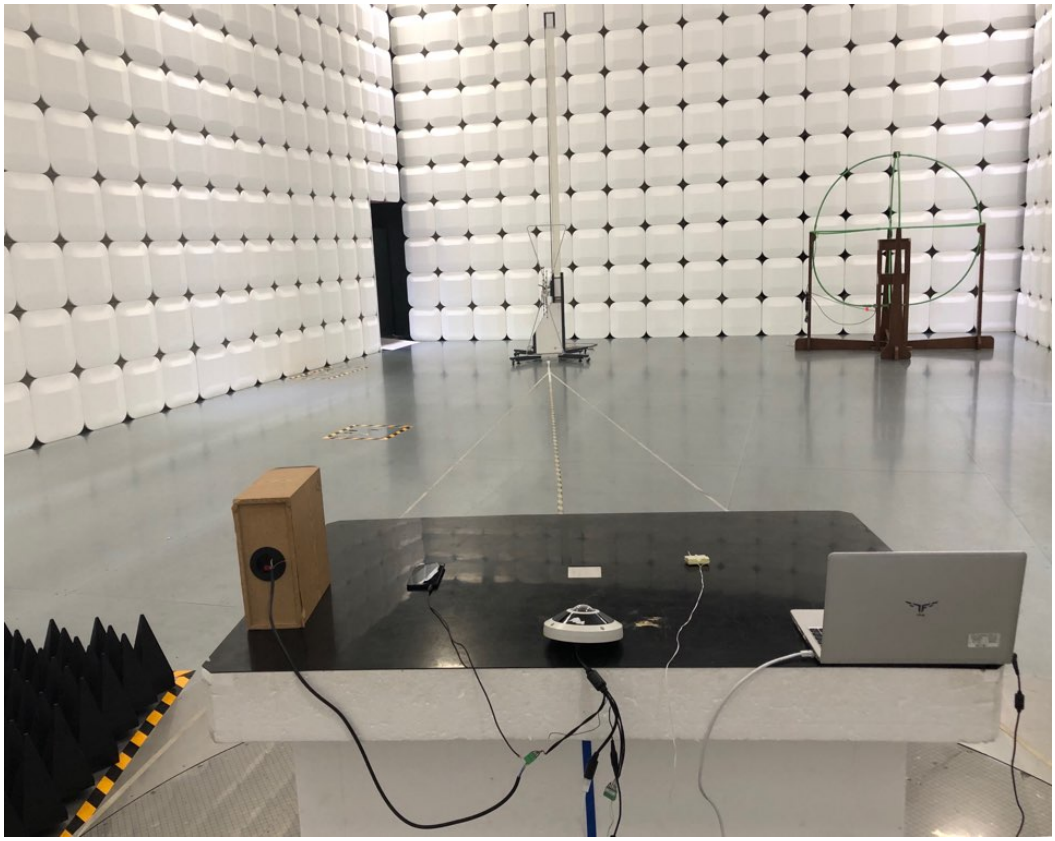
Conducted emission (Maximum emission configuration) _ TEL / REC + 1 kHz Play mode (DC Adapter)

Conducted emission (Maximum emission configuration) _ TEL / REC + 1 kHz Play mode (PoE Adapter)

Radiated emission (Maximum emission configuration)-Below 1 GHz

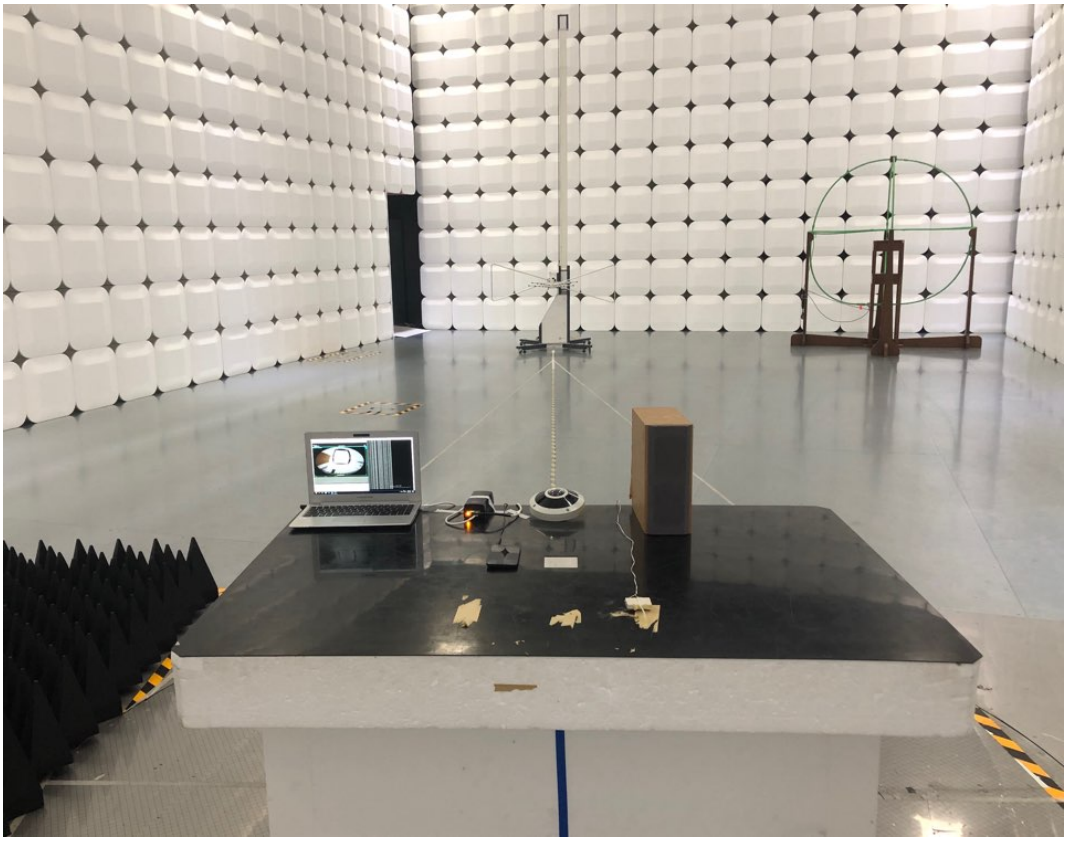
/ REC + 1 kHz Play mode (DC Adapter)

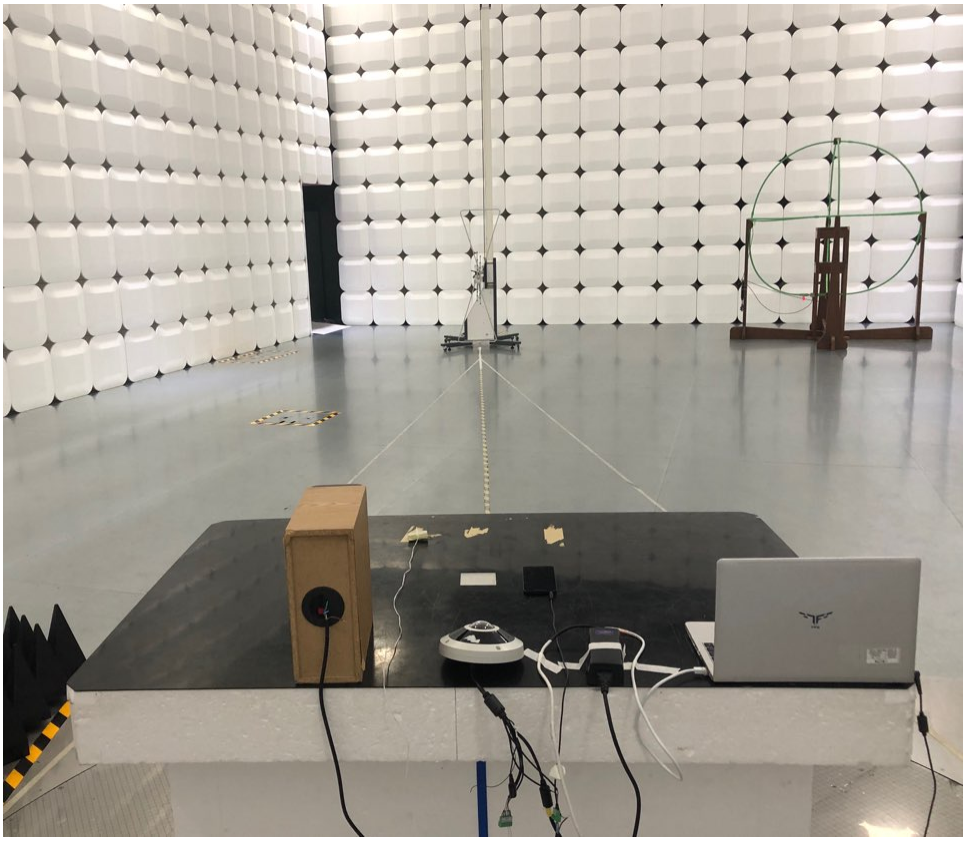




Radiated emission (Maximum emission configuration)-Below 1 GHz

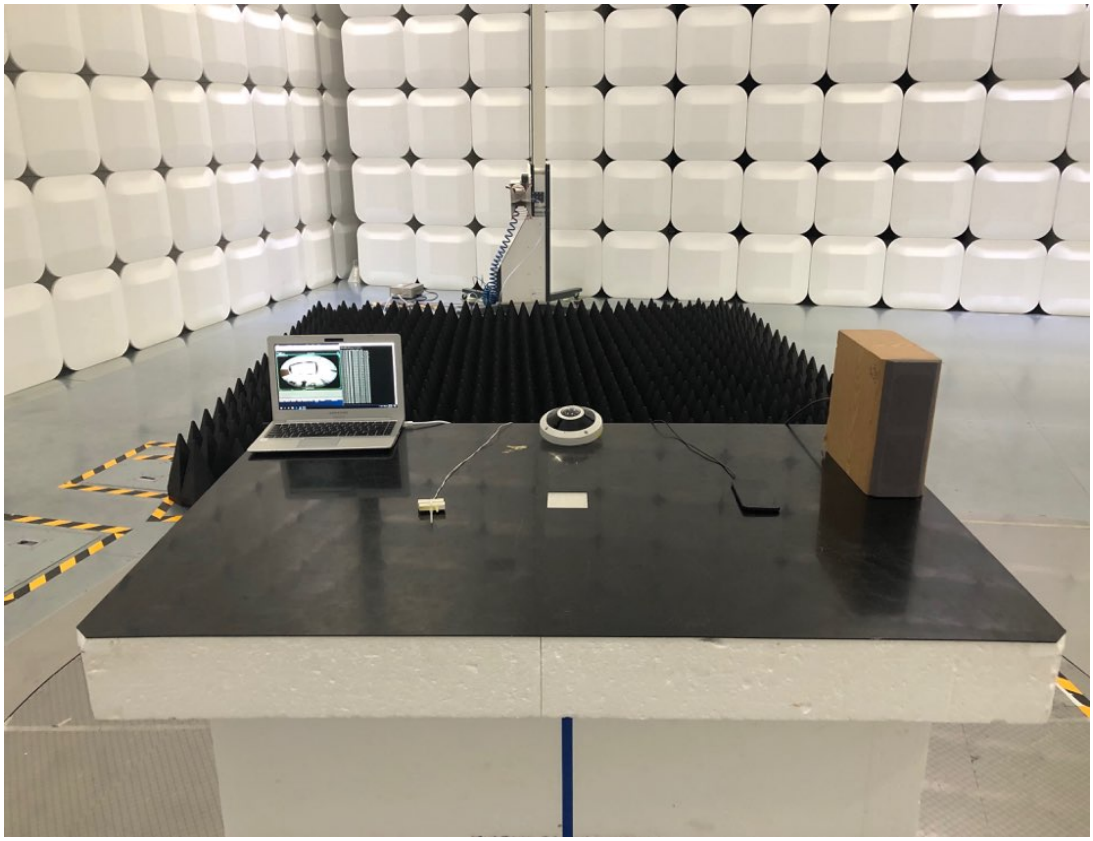
/ REC + 1 kHz Play mode (PoE Adapter)

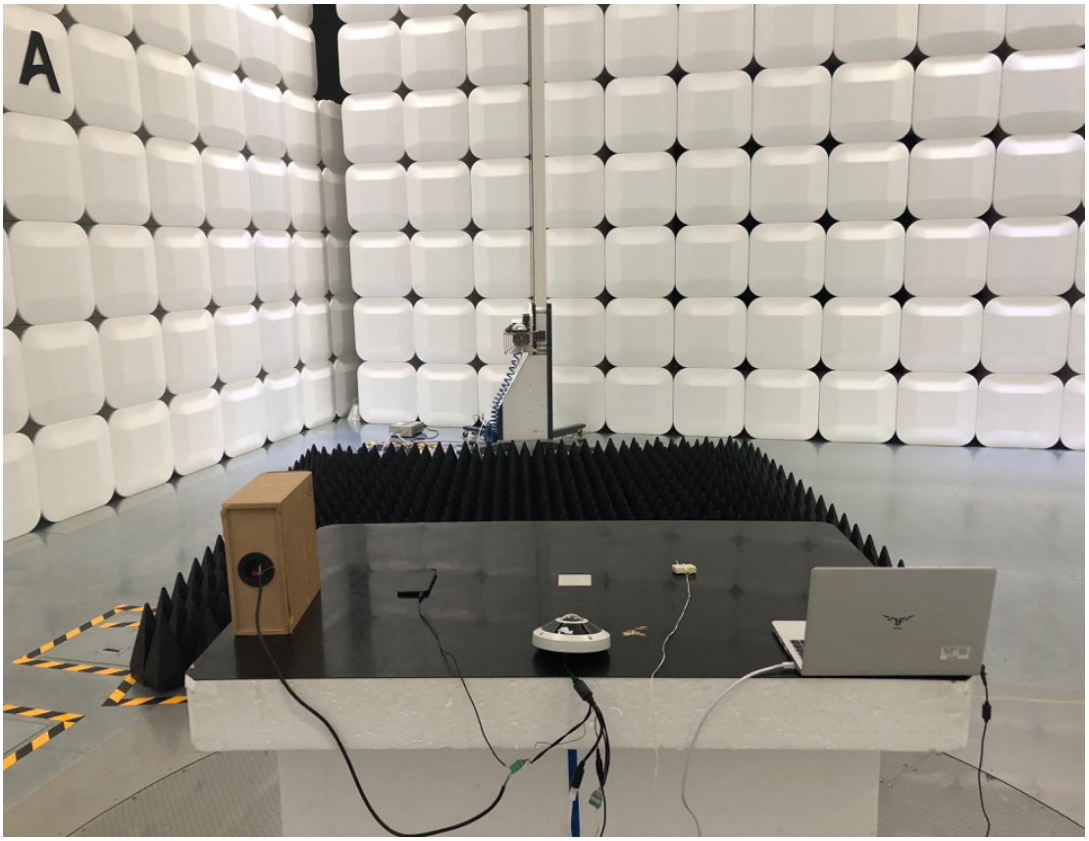




Radiated emission (Maximum emission configuration) – Above 1GHz

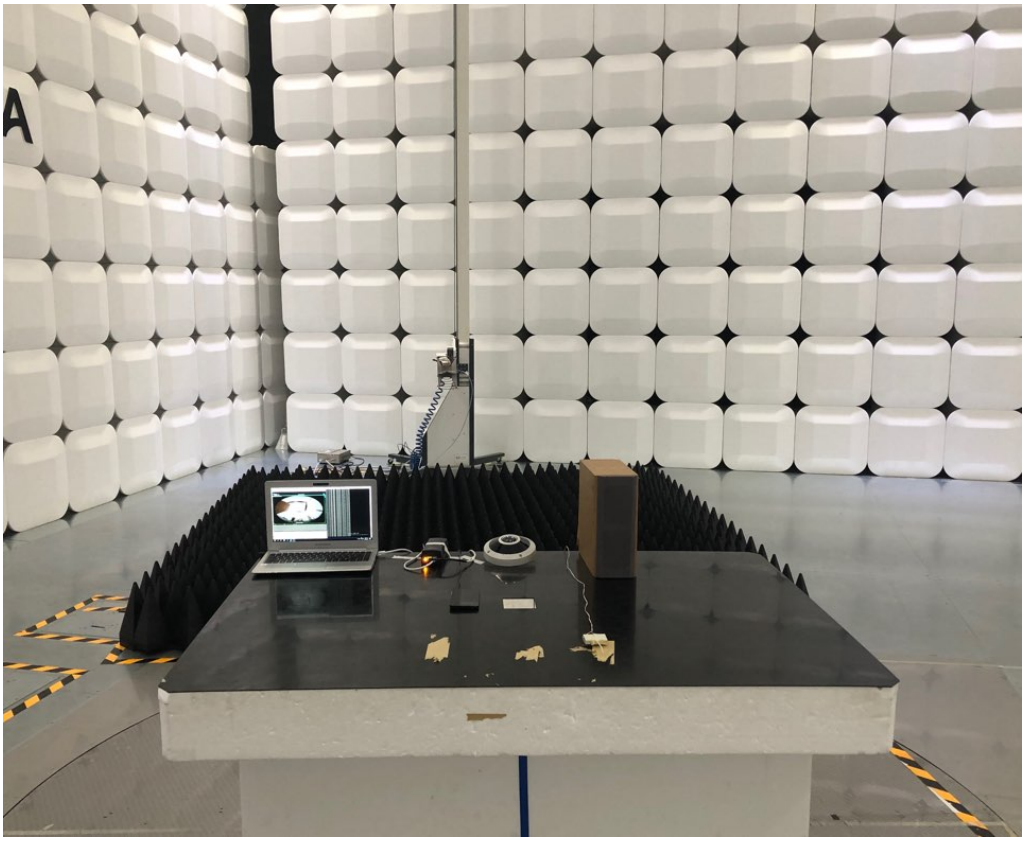
/ REC + 1 kHz Play mode (DC Adapter)

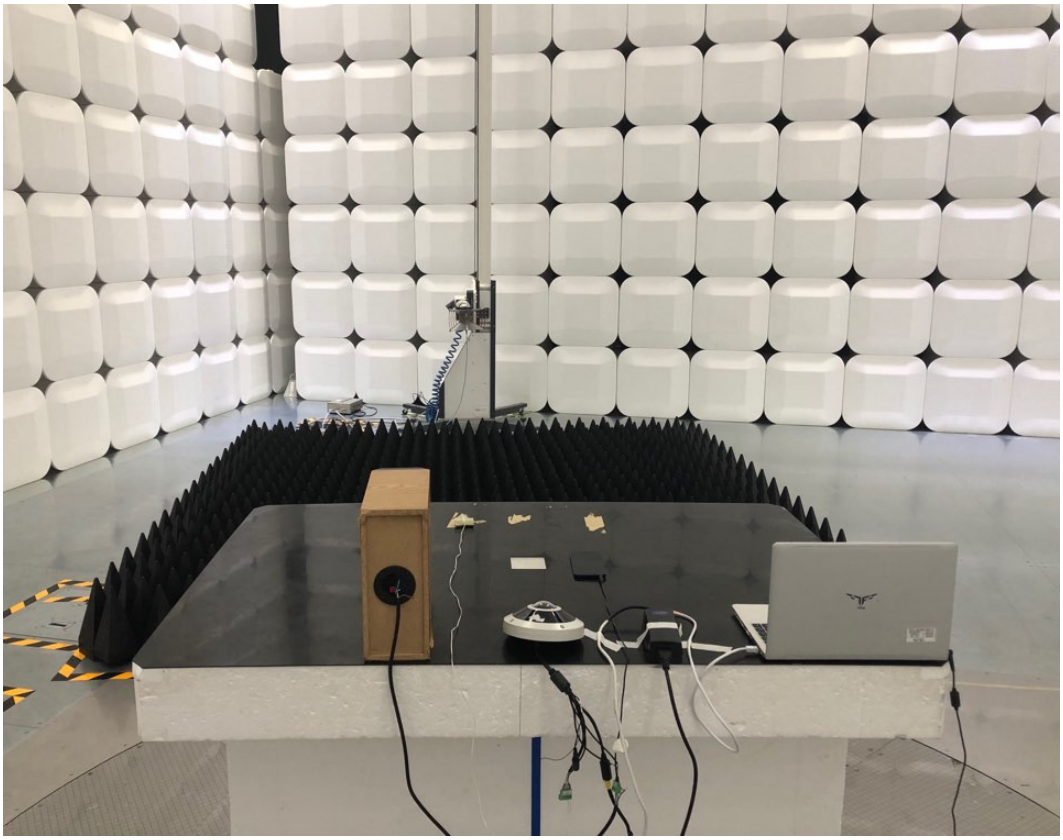




Radiated emission (Maximum emission configuration) – Above 1GHz

/ REC + 1 kHz Play mode (PoE Adapter)

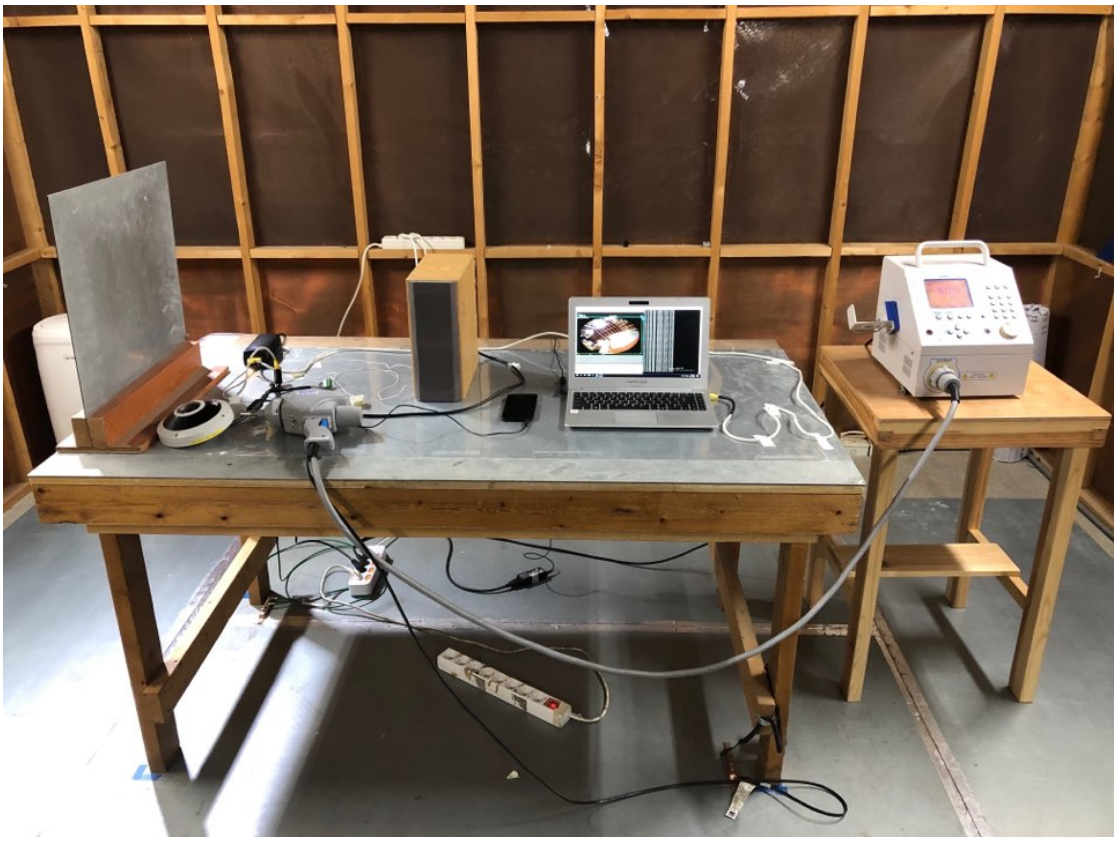




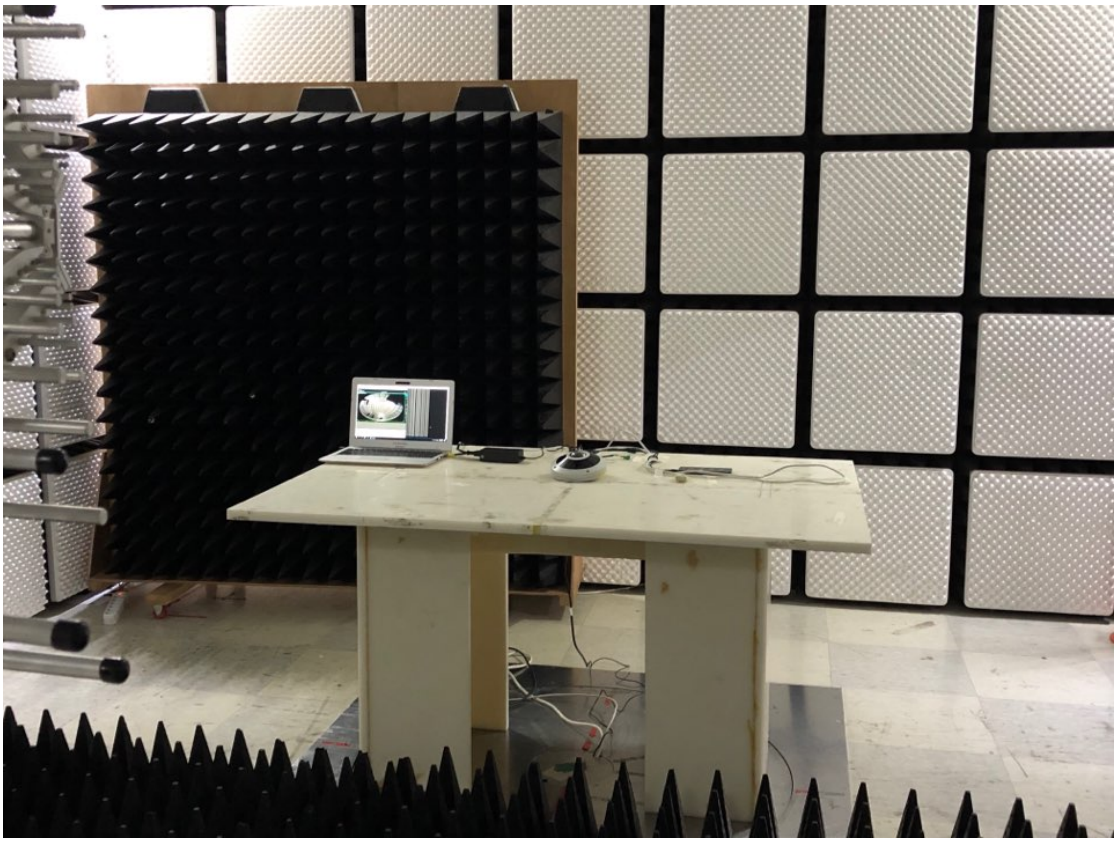
Harmonic Current / Voltage Variation and Flicking / REC + 1 kHz Play mode (DC Adapter)

Electrostatic discharge / REC + 1 kHz Play mode (DC Adapter)

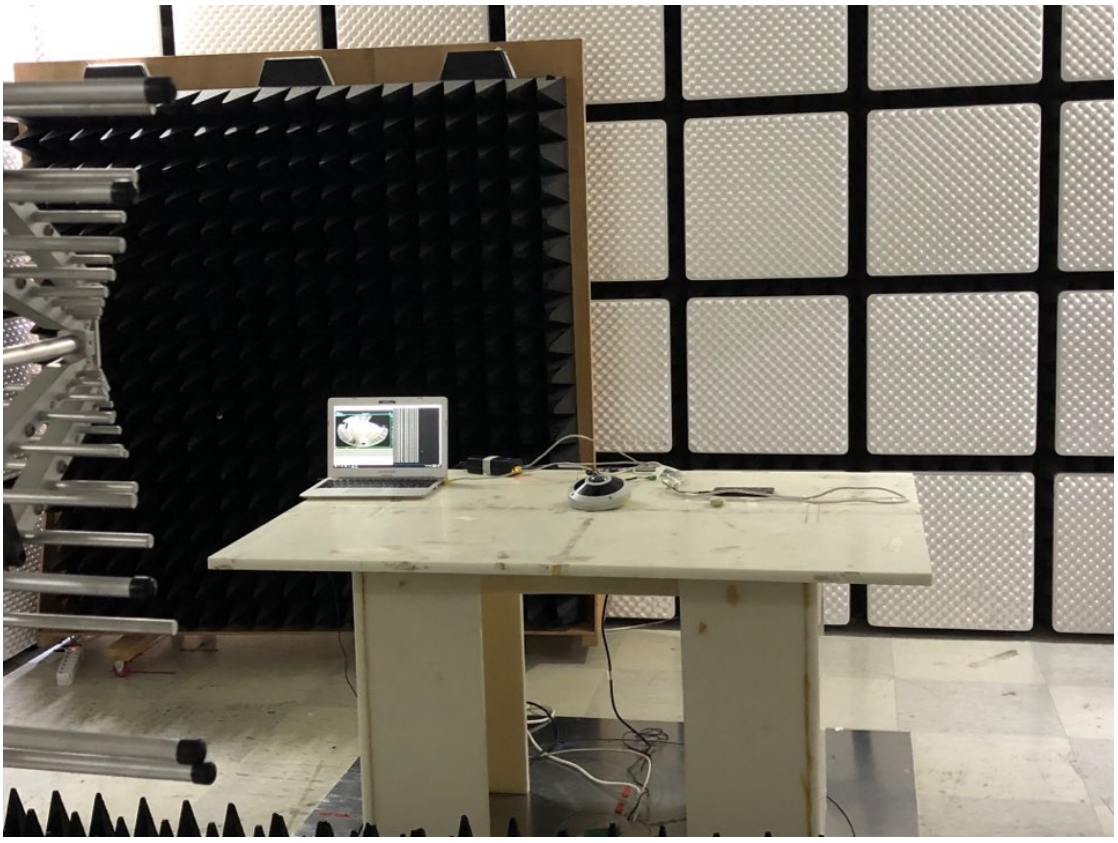
Electrostatic discharge / REC + 1 kHz Play mode (PoE Adapter)



RF Electromagnetic Field / REC + 1 kHz Play mode (DC Adapter)

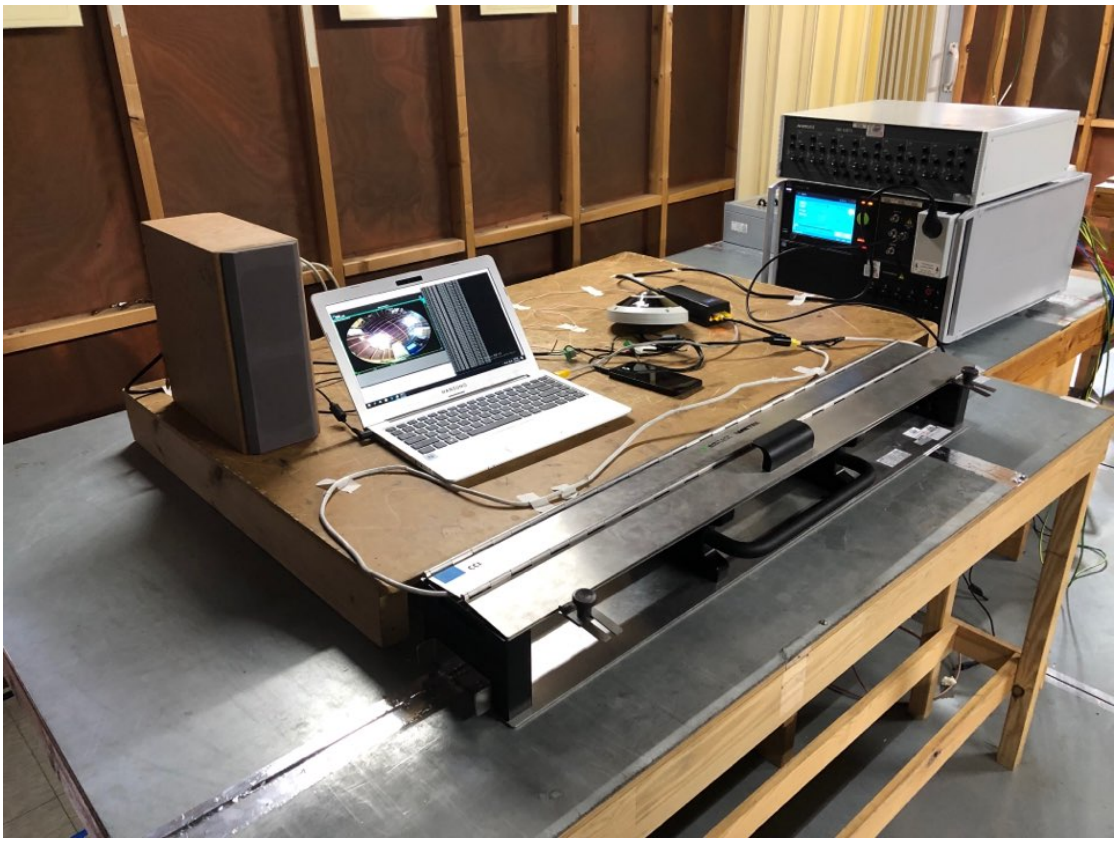


RF Electromagnetic Field / REC + 1 kHz Play mode (PoE Adapter)

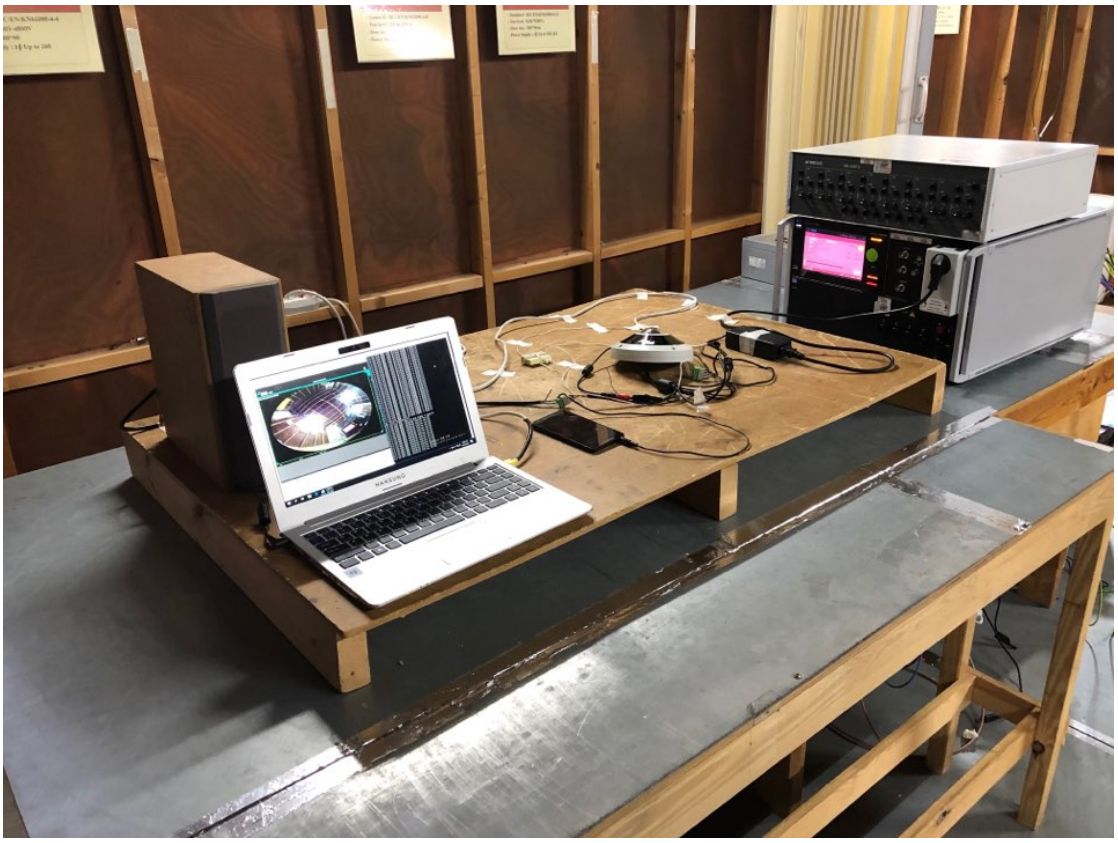


Electrical fast transients / REC + 1 kHz Play mode (DC Adapter)

Electrical fast transients / REC + 1 kHz Play mode (PoE Adapter)

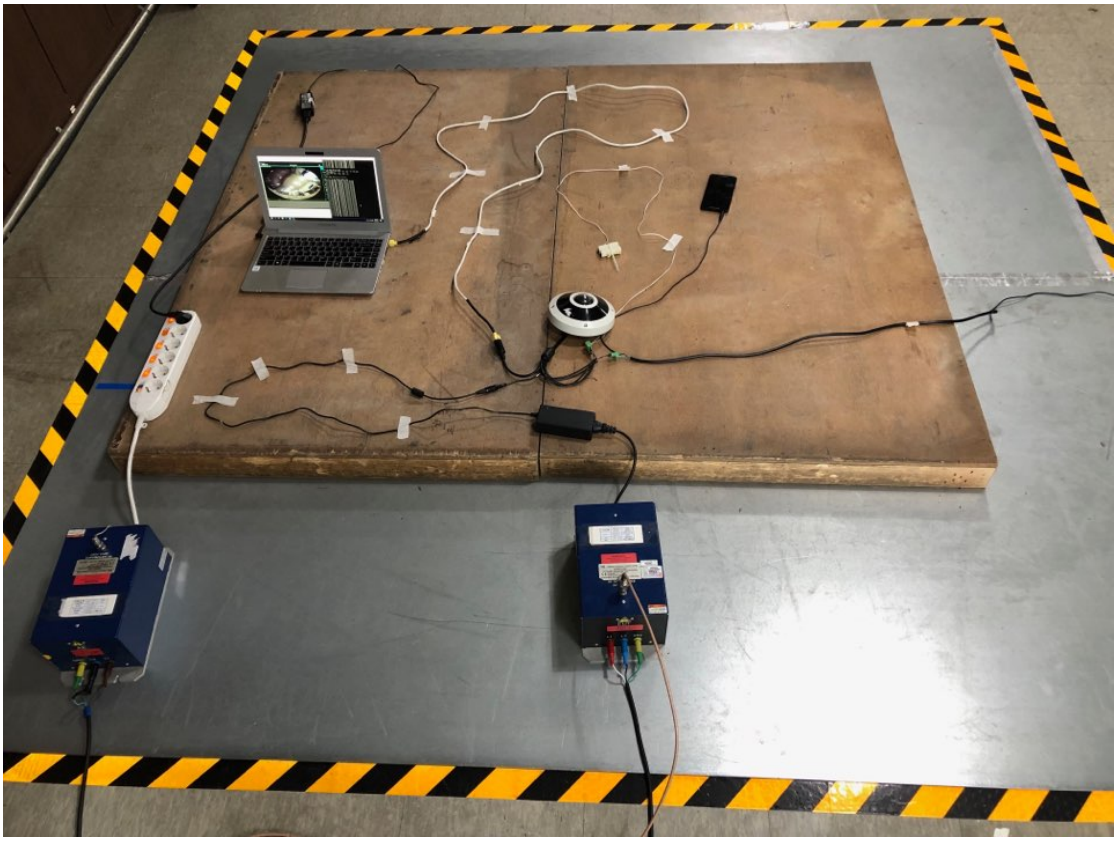


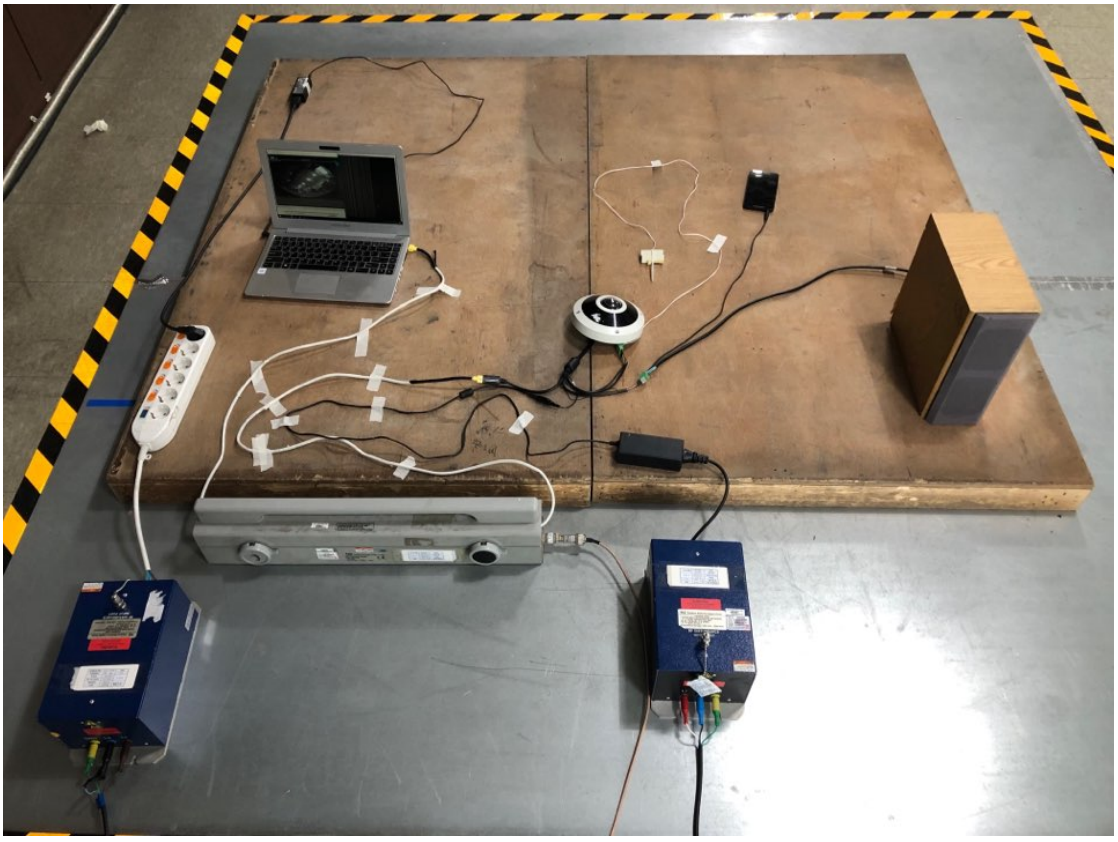
Surge / REC + 1 kHz Play mode (DC Adapter)



Surge / REC + 1 kHz Play mode (PoE Adapter)

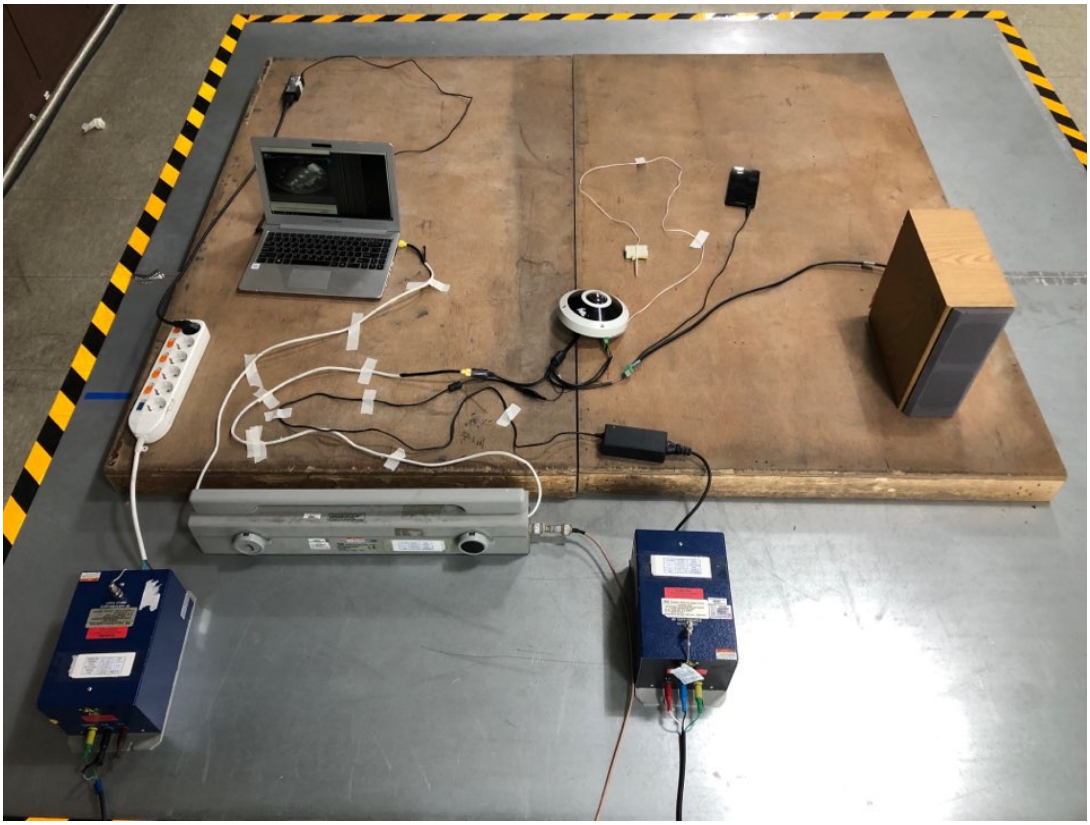
Conducted Disturbances, Induced by Radio-Frequency Fields
/ REC + 1 kHz Play mode (DC Adapter)



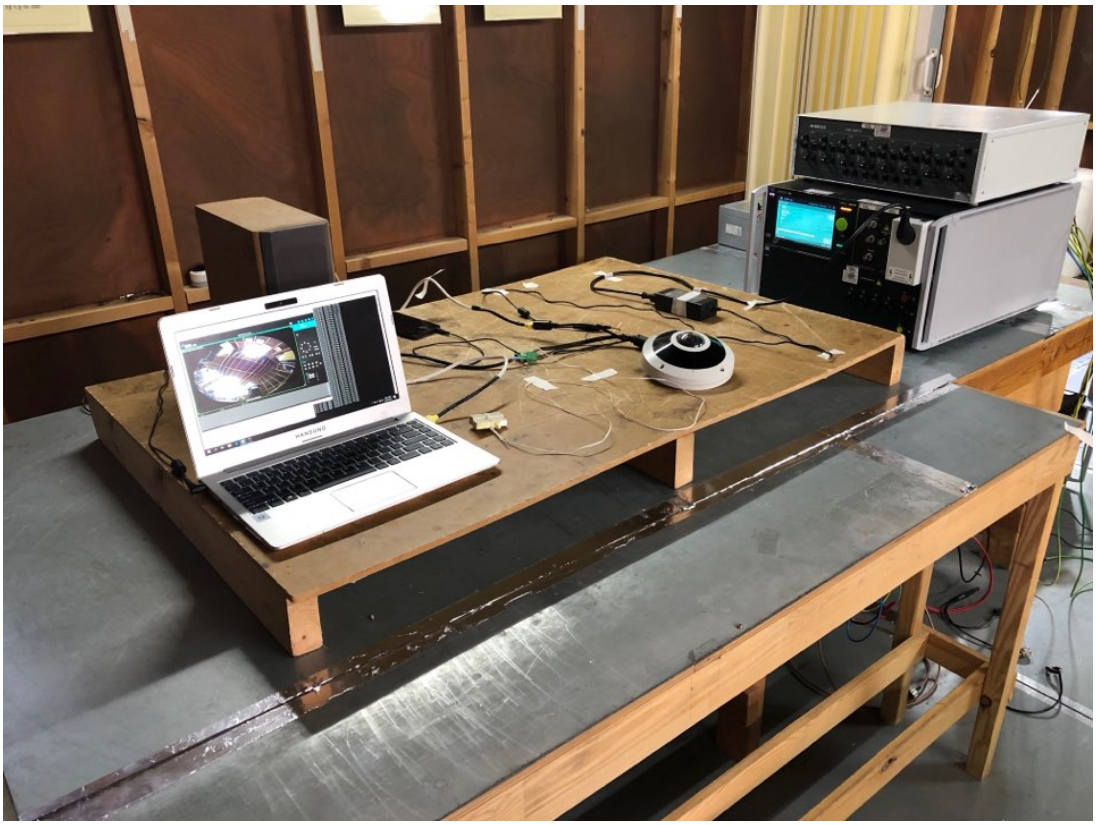


Conducted Disturbances, Induced by Radio-Frequency Fields

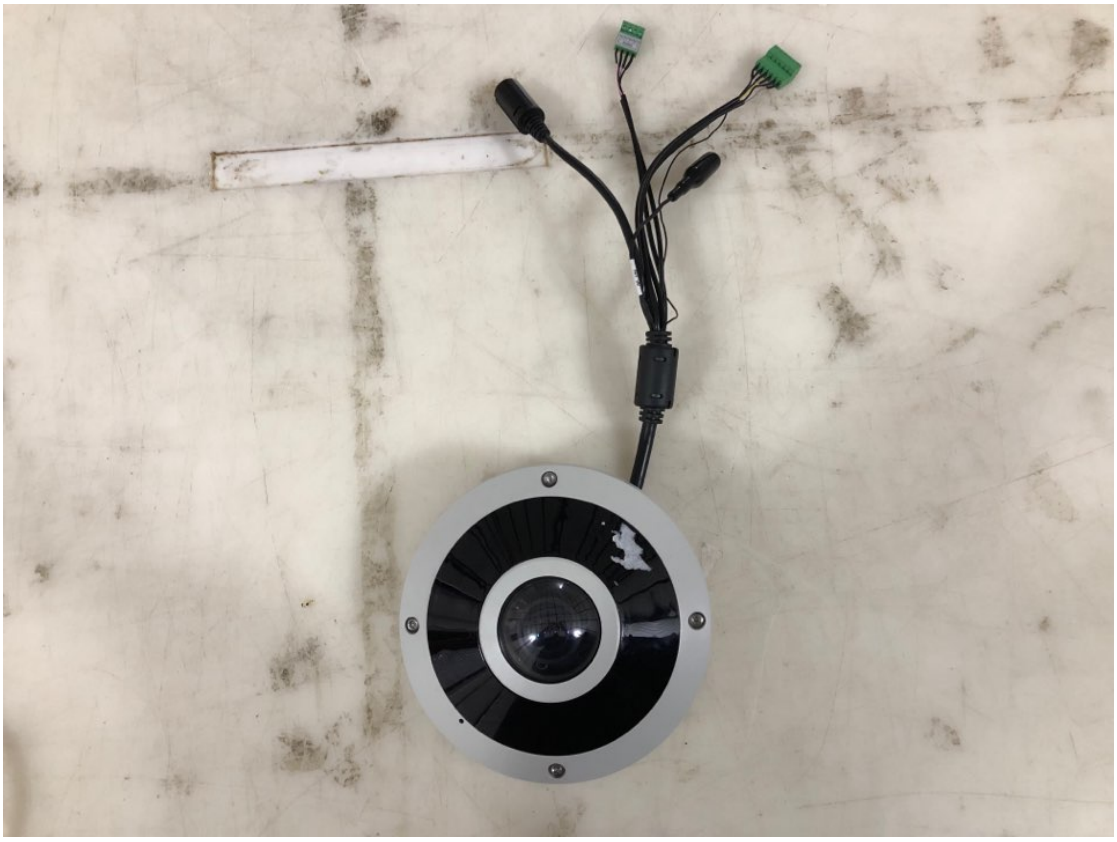
/ REC + 1 kHz Play mode (PoE Adapter)

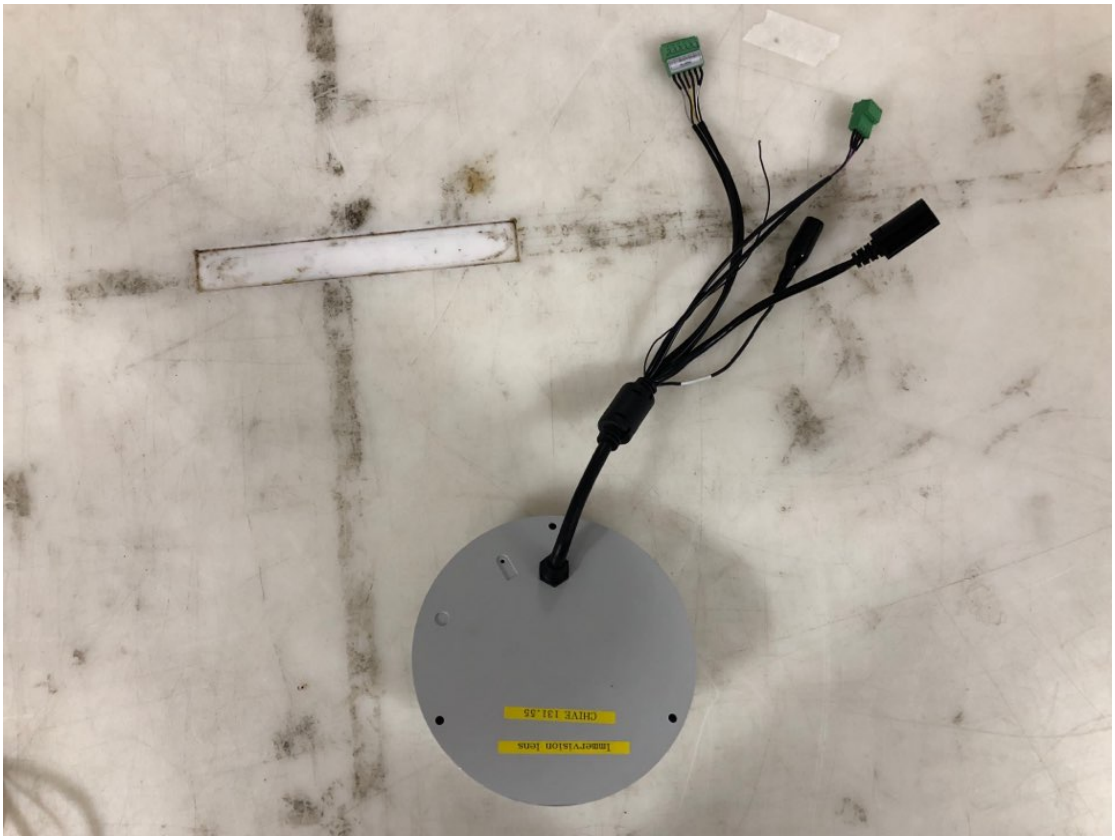


Main supply voltage dips, short interruptions / REC + 1 kHz Play mode (DC Adapter)



EUT





EUT